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COMMERCIAL CAR JOURNAL

The Magazine for Fleet Operators

SEPTEMBER 1938

*Total
Mileage* / *Cost of Truck*
Cost per Mile (depreciation)

The depreciation on a truck costing \$1000 is 2c per mile if its life is 50,000 miles.
A unit costing \$1500 must operate only an additional 25,000 miles to equal the same depreciation cost.

But the extra \$500 will probably give the operator more truckability, lower maintenance cost and better all-around performance. Above all, much more than 25,000 miles of extra service!

Many Reo trucks have operated — and are operating — far in excess of 150,000 miles. Long life is built into every unit by the use of heavy-duty construction engineered to meet the toughest trucking requirements.

Reo's longer life, coupled with low maintenance, assures you lowest cost per mile. It costs no more to buy Reo; it costs far less to operate Reo!

*The more
miles
The less
Cost!*



REO MOTOR CAR CO., Lansing, Mich.

LOW DODGE TRUCK PRICES

MY NEW DODGE
PAYS FOR ITSELF
MONTH BY MONTH
ON THE
BUDGET
PLAN



TED SENELICK
Chicago, Ill.

Put Dodge Quality Within Reach of Every Truck Buyer *Right Now!*

"RIGHT NOW is the best time in history to buy a new Dodge truck," say thousands of smart buyers. Dodge trucks today are one of the lowest-priced makes yet they include all the famous Dodge extra-quality features. These known, recognized quality features often effect such big economies on gas, oil and tires that many who trade in old trucks assert the "savings take care of a good share of

the monthly payments on the new Dodge." On top of that, many also report that "the old truck was worth a lot more in trade today on a new Dodge than I expected." It will surprise you to learn how easy it is to buy a new Dodge. See your Dodge dealer now!

Tune in on the Major Bowes Original Amateur Hour, Columbia Network, Every Thursday, 9 to 10 P. M., Eastern Daylight Saving Time.

This advertisement endorsed by the Engineering Department, DODGE Division of Chrysler Corporation, Manufacturers of Dependable Cars and Trucks.



QUALITY FEATURES SAVE BIG MONEY! This big 116" W. B. Dodge Panel is unquestionably America's most beautiful truck. Has genuine hydraulic brakes, roller bearing universals, exhaust valve seat inserts...dozens of money-saving features. See your Dodge dealer.



MANY EXTRA-QUALITY FEATURES! Dodge 1 1/2-ton Stake, 6-Cyl., "L"-Head Engine—features include 19 special "econ-o-mizers" yet priced with the lowest! (133" wheelbase with 9' body and 159" wheelbase with 12' body.)

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DODGE TRUCK PRICES DELIVERED IN DETROIT
Including Federal Taxes. (Local, State Taxes Not Included)

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116" W. B.
CHASSIS

\$475

1 1/2-TON
133" W. B.
CHASSIS

\$604

1/2-Ton Pickup—116" W. B.\$600
1/2-Ton Panel—116" W. B.\$695*
3/4-Ton Express—120" W. B.\$694
Price includes front bumper, spare tire and tube.
*Also includes rear bumper.

Other models of 1/2, 3/4, 1, 1 1/2, 2 and 3-ton. at correspondingly low prices. **FOR DELIVERED PRICES IN YOUR LOCALITY SEE YOUR NEAREST DODGE DEALER.**

...LOOKS AS
THOUGH I'LL SAVE
\$95 ON GAS
THIS YEAR

KARL FEKETE
Summit, N. J.



COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance
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COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

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REAR DOOR LOCKS

For Tighter-Rattleproof Doors

No. 111

No. 125

No. 99

Designed by HANSEN

LOWER COSTS—in installation, operation and service—result from using Hansen Rear Door Locks. Self contained—no mechanical work—easy to install. Simple in design—easy to operate. Ruggedly built—longer service—lower up-keep and replacement costs.

No. 111 Heavy-Duty Lock. Snaps open! Snaps shut—simply operate handle. Bolts held open or closed—under pressure! Top and bottom bolts, 1½" wide. Center bolt, 2½" wide. Suitable for right- or left-hand doors.

No. 125 Slam-and-Take-up Lock. Slams shut. Takes up. Double-angle striker bolts operate under constant tension. Result—tight, silent, rattle-proof doors.

No. 99 Rotary Lock. Four-point contact draws doors solidly together. Interlocking center mechanism. Makes doors solid, noiseless, sagless.

Hansen Rear Door Locks include various types—heavy-duty, rotary, rotary-and-take-up, slamming and slam-and-take-up.

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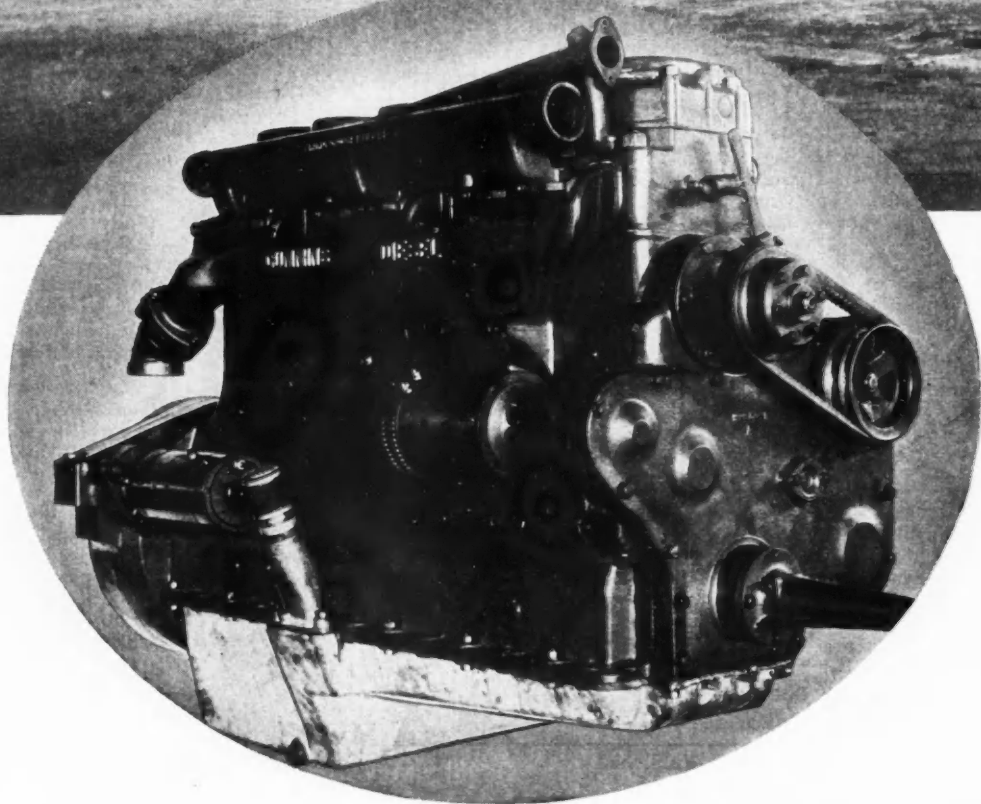
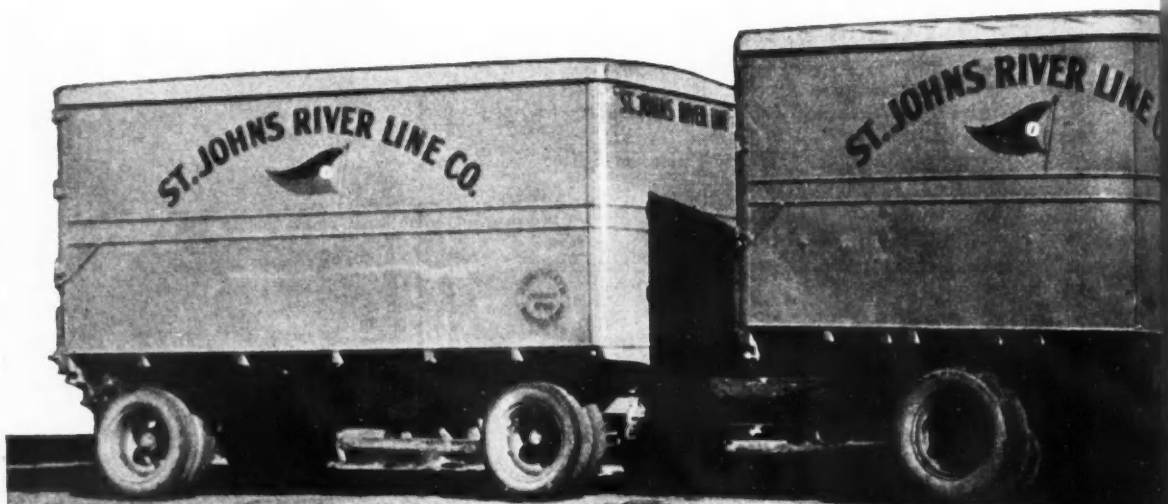
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CUMMINS DIESEL

Cummins Diesel-powered truck and trailer, operated by the St. Johns River Line Company, Jacksonville, Fla., hauling general freight.



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COMMERCIAL CAR JOURNAL
SEPTEMBER, 1933

CCJ QUIZ



Here's the "perfesser" again with his quiz, and judging by comments received it's a feature that many readers enjoy. Apparently readers would rather work them out than work them up because only a few have taken the trouble to send in questions for which, until further notice, we will continue to pay \$1 per question. Is there a quizzier in the house? He's wanted at the front office.

Now instructions to quizees: Check the answer you believe to be correct. Score 10 points for each correct answer. A total score of 80 points is Good.

Quizees scoring 100 points are requested to send in their names for the Hundred Club. The price of membership is a perfect score. A corner of these pages has been reserved for the names of club members.

Correct answers on page 68

1. One of these States has a Port-of-Entry law aimed at commercial vehicles (give it a good black mark):
Kentucky Kansas South Carolina

2. The amusing horse that has enlivened AC spark plug advertising is officially known as
Sparky the Plug Cleenie the Plug Whitey the AC Plug Hi Ho Silver

3. The tributes which were paid recently to Henry Ford were in honor of his
golden wedding anniversary seventy-fifth birthday invention of the Ford car



Super thirst-quencher for Detroit area soft-drinkers is Coca-Cola's newest Federal Fruehauf combination—8592 bottles per trip covering Detroit's outlying rural sections

COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

4. If you've been alive to diesel engine developments you will know that one of these companies does not produce an automotive diesel:
Hall-Scott Hercules Waukesha Continental GMC Cummins Buda

5. Just about here we try to give you an easy one, so without more ado the president of the company that builds Mack trucks is
E. V. Rickenbacker E. C. Fink F. K. Glynn M. C. Horine

6. The recently released movie dealing with racketeering in the truck business was entitled
Tip Off Girls Racket Busters Making Headlines Fast Company

7. Almost every big company has a comptroller but sometimes even the officer with the title doesn't know or forgets that its correct pronunciation is
comp-trol'ler con-trol'ler

8. You may know that Pedrick piston rings are known from coast to coast but do you know that they are manufactured by
Pedrick Ring Co. Wilkening Mfg. Co. Peter Kendrick Piston Ring Co.

9. Unless you happen to be color blind, or in case they don't operate in your vicinity (in which case just take a guess), you know that on those handsome new blue-and-white Greyhound buses the fenders are
painted white painted black painted blue not painted

10. The concern with a big national fleet that sponsors Bing Crosby and Bob Burns on the radio is a well-known distributor of
bazookas movies crackers loud shirts cheese wax-polish



Amid the vogue for streamline midgets comes this scale model by Rust Heinz for a full-sized Autocar chassis. It is reported several will soon join the H. J. Heinz fleet



Ford Folio

The oldsters among this department's readers can remember that in years gone by the Ford rumor sub-department always did a flurry of business at this season of the year. Some years it was so marked that dispatches relating to Ford were gathered in a column under a special heading. So far Ford rumors are to the effect that all passenger cars will follow the Lincoln-Zephyr styling; the model 60 will be the price leader with the 85 as the standard in the larger class and a 100 hp. car with 116 in. wheelbase as the de luxe. All passenger cars and commercial cars will have hydraulic brakes but not the trucks. The brakes will not look like any you have ever seen before.

Frontal Fact

Ford will not be alone in making all cars look like the Zephyr from the front. Early dispatches from the front of the battle of grilles indicate that most cars will be sisters above the skin with one notable exception—Nash.

Passenger Preference

Running boards are due to disappear, according to our agent, who checked bills of material and found no running boards itemized. This same agent found coil springs listed among the rear suspension materials for another car for 1939.

Automatic Acumen

Vehicle manufacturers are being given a look at a completely mechanical automatic transmission these days, according to our agent, who has been looking over their shoulders. It involves some new ideas, such as winding up a chain around a planetary gear stub to make a gradual change of ratio.



Gone are ice-pick days—even to non-electric users for the streamlined International with Badger body delivers cubes or chips



Engine Estimate

One of the lower-priced trucks will have its power stepped up 25 to 30 per cent and torque upped 7 per cent in the 1939 edition without changing the engine size. Reduction of weight of engine parts, higher compression ratio and a better camshaft design are said to have given these results even while giving slightly better fuel economy.

Diesel Duet

Information automatically converges around this department's typewriter. From different sources comes word that one engine manufacturer is building a new series of diesel engines around 370 cu. in. Meeting this dispatch just at the keyboard is a note giving the information that in another factory some four and some six-cylinder diesel engines with a 4 in. bore and 5 in. stroke are just beginning to come off the line.



Only 10 years young, this veteran Mack piled up no less than 1,134,000 miles during the time it served Palmer's Transfer of Scranton, Pa. Now it's working for another

Door-to-Door Deference

Through perfectly legitimate channels this department came into some pretty complete specifications on three new door-to-door units soon to be announced by one manufacturer. Just as we were about to be magnanimous and turn them over to another section of the magazine for complete exposition we were flagged down by a wire which said that there was to be no release until photographs were available. Our cameraman was champing at the bit but it seems that the manufacturer could not provide him with a finished model.

AFTER HOURS

EDITORIAL COMMENT BY GEORGE T. HOOK

SOME ADVICE . . . THAT ODOR AGAIN . . . AND . . . PRIVATE CARRIERS

Week-End Operation

AGITATION to keep trucks off the highways over week-ends and holidays appears to be growing. The subject got nation-wide publicity last month when the American Institute of Public Opinion released the results of a survey. To test public sentiment on the question, the institute asked a cross-section of voters in all States:

"Do you think freight trucks should be kept off highways during certain hours on Sundays and holidays?"

The vote was: Yes, 73 per cent; No, 27 per cent. The survey found car owners and non-car owners voting in approximately the same ratio in favor of restrictions.

While this survey definitely concerned itself with "freight trucks" that term is susceptible of a definition broad enough to involve many other vocations.

Although the general public may not be aware of it the trucking industry has not had its eyes closed to the public reaction to the presence of trucks in peak week-end traffic streams. Many of the industry's leaders have been urging truck operators to do everything humanly possible to keep their trucks off the highways during the peak periods. And many operators have cooperated. However, the cooperation of all operators is urgently needed. All state motor truck associations should take the initiative and display a cooperative attitude with regulatory authorities. By doing so each can effect a solution which will take care of peculiarly local conditions.

The solution may keep all trucks off all highways during only certain week-end hours; it may keep all trucks off only certain highways during certain week-end hours, or it may keep only certain kinds of trucks off all or certain highways during specified week-end hours. Local traffic conditions should determine the solution.

In making this recommendation to the trucking industry, **COMMERCIAL CAR JOURNAL** does not thereby concede the reasonableness of the arguments which have been advanced by those who favor the curbing of trucks, particularly those advanced in the name of safety. It simply recognizes a fact that must be obvious to every operator of trucks, and that is that the antagonism of the average passenger-car driver to motor trucks represents nothing more nor less than a complete surrender to his selfish instinct. As such it cannot be combatted with arguments based on reason, fact and logic. The only practical way to handle it is to make concessions in the form of active cooperation; concessions which may penalize trucking somewhat, but which will not be as severe as penalties inflicted if a cooperative attitude is not displayed.

Sound Suggestions

THE industry can do some more cooperating to create public goodwill by following the suggestions made to the Pennsylvania Motor Truck Association by the State Secretary of Revenue:

"Instruct your drivers to increase courtesies to the passenger car driver.

"Instruct your drivers to keep as

far from the center of the road as is humanly possible.

"Where your drivers observe a large number of passenger cars behind them, instruct them to move aside wherever possible and permit passenger cars to go by.

"Request your drivers not to bunch trucks too closely behind each other on the road."

Every truck driver, he observed, who does not have consideration for passenger car drivers brings censure upon the industry as a whole. That may not be fair, he said, but it is true.

The state truck association is co-operating—as all truck operators should cooperate, because it is the sensible thing to do.

That Odor Again

IN the matter of truck regulation, the American Automobile Association—representing thousands of passenger-car owners—always has taken a very reasonable attitude. While taking care of the interests of its members as motorists it has not overlooked their interests as citizens. Thus while seeking week-end traffic relief for its members by asking for restrictions on commercial vehicles, it has recognized community needs by making an exception in the case of transportation of milk and perishable foodstuffs.

The AAA definitely has not been a party to the game of anti-truck interests.

Apparently the anti-truck interests are out to change all this—if possible. Comes word from Washington that they have formed Organized Motorists, Inc., "to obtain more stringent and more uniform regulation of buses and trucks, their speed and size."

"The private motorist has been unorganized," says an official news-release ignoring the existence of the American Automobile Association, "and heretofore has done little or nothing for his own protection and self-interest. . . . It is high time that passenger car owners have something to say about special taxation and about the highways and (the publicity item closes with revealing antipathy) about the trucks and buses."

The hand-picked executives of this organization who form a directorate

calculated to disarm the average motorist, will pardon the truck industry's sensitiveness in detecting here the penetrating odor of railroad herring.

Private Carriers Beware

EVIDENCE continues to pile up to prove that private motor truck operators will be wise if they lose no time in binding themselves together in a strong national organization.

The latest bit of evidence that it is open season for private carriers comes from the mecca of regulation in the United States—the Interstate Commerce Commission, and from the high priest at that. Speaking before the Associated Traffic Clubs of America, Walter M. W. Splawn, chairman of the ICC, said:

"The common carrier companies, such as the railroads and the regulated trucks on the highways, are available to all sorts of shippers and to the public generally. But individual companies and private corporations engaged in any sort of activity do their own transporting and their transportation is now mounting into billions. It is these non-common carriers which have demoralized the rate structure for the common carriers. There is a problem which the traffic men of this country are best equipped to attack. Just how far should an individual corporation not a common carrier go in transporting its own goods?"

What Chairman Splawn intended to ask, the eminent bond-and-stock-minded *Wall Street Journal* editorially suspects, was: "Just how far should manufacturing or trading companies be allowed to go in transporting their own goods?"

Our editorial suspicion is that our railroad-minded contemporary phrases Mr. Splawn's intention correctly. In other words:

How far should private businesses be allowed to go in transporting their own goods in their own trucks?

This is an amazing query for a public official to make publicly. It is almost inflammatory in character, not at all in keeping with the person of the head of a quasi-judicial body such as the ICC. It raises the suspicion of railroad bias, and should serve to fortify private carriers in their determination to protect their interests.

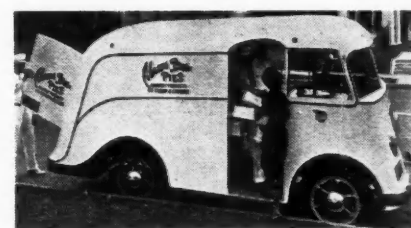


Holtom & Holister Hentry

The three-wheel package pictured on these pages last month aroused considerable interest, so with our accustomed alertness we have uncovered more details. The vehicle is not yet for sale, in fact the designers are looking for a manufacturer. When, as and if built it will cost the buyer something over \$300. It is powered with a two-cylinder V-type air-cooled engine and the shipping weight of the vehicle is 400 lb. or about 1/4 of its payload capacity. It has hydraulic brakes on the front wheels and steers from the rear wheel by cable control. There is about 30 1/2 cu. ft. for packages.

Light Ledger

Even among motor vehicle bureau officials our system works. It tells us that the entirely new headlight in which the reflector, bulb, lens and shell are all one piece was recently demonstrated to them to see what the real reaction would be. The officials gave no official answer, but all were favorably impressed.



Air conditioning preserves both food and customer good-will in the 100 new Studebakers purchased by Ahrens Brothers Pies, Los Angeles, for house-to-house selling

Monoxide Manipulation

An insurance company will shortly tell you how to build a simple carbon monoxide tester. It is said to be extremely simple, consisting largely of a bicycle pump, a cigarette lighter coil and an alkaline solution. The idea is that anyone with slight mechanical knowledge can build it with materials he can purchase from neighborhood stores.



Commerce Hall, Port of New York Authority Building, 15th St. and 8th Ave., is to house the show. An inside freight depot will facilitate exhibit handling.



All arrangements are in the capable hands of Show Manager Walter Peper



One of the candid camera shots entered in the truck show's \$2325 contest

THE NATIONAL

WITH 55 leading companies in the billion-dollar motor truck industry already signed up as exhibitors, the Fifth Annual National Motor Truck Show, which will be held this year from Nov. 11 to 17, inclusive, in Commerce Hall of the Port of New York Authority Buildings, bids fair to surpass all previous efforts.

There can be no question, according to John F. Winchester, president of the show corporation, that this year will also see previous attendance records for the show shattered. Since the locale of the exhibition has been transferred to New York City and the date advanced to coincide

with that of the National Automobile Show in Grand Central Palace, visitors from every state in the Union, as well as many foreign countries, are expected to attend in far greater numbers.

To date, more than 70,000 sq. ft. of the available 98,000 sq. ft. of exhibition space have been contracted for and space reservations are coming in daily.

The Port of Authority Building which covers a big city block from 8th to 9th Avenues and from 15th to 16th Streets, is ideally constructed for a heavy goods exhibition since it contains more than adequate re-

ceiving and shipping facilities. A large, inside freight depot will eliminate the expense of uncrating and transferring equipment.

All arrangements for the show have been delegated to Walter S. Peper of the Packard Motor Car Co. of New York, which has loaned Mr. Peper's services up to and for the duration of the show. Mr. Peper serves Packard in the New York fleet division. Prior to joining Packard, Mr. Peper had been connected with the Gulf Oil Co., Curtiss-Wright Corp., and the Bellanca Aircraft Mfg. Corp.

To further facilitate arrangements,



Port Authority's Ramsey and Showman Winchester sign up for the exhibit



Trucking's part in air transportation is depicted by another entry.

transportation methods, air, water, highway and rail, are eligible in the competition. Heading the list of awards is a prize of \$250 for the best photograph in all classes, and first and second prizes of \$50 and \$25 respectively for the best two photographs in the various divisions. In addition, three \$10 prizes will be awarded in each class for the next three best pictures illustrating the different methods of transportation. Ingenuity will also be rewarded by a fifth classification illustrating oddities in transportation. In this class, the same awards will be made.

The prize money offered by the show will be augmented by the Chevrolet Motor Co., and the Four Wheel Drive Auto Co., of Clintonville, Wis., each of which has announced its intention to double any prize, including the grand prize, if winning photographs include in their composition any of their company products.

In addition, The Heil Co. has offered a complete home oil burner to the creator of any photograph capturing a prize and including a Heil product in its composition.

George Kuhlman, of The Heil Co., and a director of the show corporation, is chairman of the candid camera contest committee.

Truck Show Exhibitors

(List as of Aug. 15, 1938)

Autocar Co.
Bendix Products Corp., Bendix Westinghouse Automotive Air Brake Co., Bowser, S. F., & Co., Inc., Brockway Motor Co., Inc.
Chevrolet Motor Co., Clark Equipment Co., Cleveland Pneumatic Tool Co., Colonial Beacon Oil Co., Commercial Car Journal, Continental Motors Corp.
Davis Welding Mfg. Co., De Luxe Products Corp., Diamond T Motor Car Co., Dietz, R. E., Co., Divco-Twin Truck Co., Dodge Brothers.
Farrell Manufacturing Co., Fleet Owner List Co., Ford Motor Co., Four Wheel Drive Auto Co., Fruehauf Trailer Co., Fuller Manufacturing Co.
Galion Allsteel Body Co., Gar Wood Industries, Inc., General Motors Truck & Coach.
Heil Co., Hercules Motors Corp., Hercules Steel Corp.
Imperial Brass Mfg. Co., International Harvester Co.
Lockwood Automotive Products Co.
Mack International Motor Truck Corp., Marmon-Herrington Co., Inc., Metropolitan Body Co., Midland Steel Co., Motor Improvements, Inc.
Quaker City Iron Works, Inc.
Reo Motor Car Co.
Silent Hoist Winch & Crane Co., Studebaker Corp.
Thornton Tandem Co., Timken-Detroit Axle Co., Trucktor Corp.
United American Bosch Corp.
Wagner Electric Corp., Walker Vehicle Co., Walter Motor Truck Co., Waukesha Motors Co., W. G. B. Oil Clarifier, Inc., Wheaton, A. W., Brass Works, Wheels, Inc., White Co.
Young Windows of America.

TRUCK

SHOW

Mr. Winchester has announced, offices have been opened in New York in the name of the National Motor Truck Show in Room 119 at the Hotel Pennsylvania.

The theme of the show this year is to be a "Candid Picture of Transportation." To support that theme, and to supply good photographic illustrations, which will be blown up and used for background decoration at the exhibition hall, a candid camera contest is now in full swing on a national basis with prize money exceeding \$2,325 awaiting both professional and amateur photographers.

Pictures illustrating the various

A Candid Picture of Highway Transportation Which Will Play to Fleet Men Nov. 11 to 17 in New York; Indications Are That It Will Be the Biggest Truck Show Ever Held; 98,000 Sq. Ft. of Space Available

THE compression ratio, carburetion, manifold, throttle opening, spark plug location, spark plug gap, engine temperature and arrangement of high tension leads all affect ignition requirements. A larger plug gap which is sometimes necessary to fire a lean mixture requires a higher voltage than a smaller gap, and the same gap at full throttle operation requires a higher voltage than it does at part throttle. Thus an engine operated at full throttle most of the time or with a lean or poorly distributed mixture will impose higher voltage requirements on the ignition system.

The automatic advance curve is generally applied so as to obtain maximum power without objectionable spark gap. Prevailing part throttle operation with resulting lower compressions and slower rate of flame propagation requires additional spark advance for best performance and fuel economy. Operations of this type indicate the need of vacuum spark control to obtain best economy.

The SAE standard distributor mounting with either the 1 1/16 or 1 5/8 in. diameter pilot is usually the most economical for general applications since it can be produced in limited quantities without special tooling. Occasionally some particular mechanical feature in the engine may make it advisable to use special mountings but this should be the exception.

For average requirements the 1 1/16 in. pilot distributor is supplied with a plain cast-iron bearing. Where higher mileages are considered some forms of bronze bearing may be advisable. For still more severe service conditions a ball bearing is added at the top of the shaft just below the breaker cam. A still more durable and more costly construction is obtained by the use of two ball bearings in the 1 5/8 in. diameter unit. Another advantage of the larger pilot is that it permits the use of a larger diameter gear in applications where the maximum diameter gear in a



Some Sound Advice from an Electrical Expert on the Ignition System Which Will Deliver the Most in

1 1/16 in. pilot has been found to wear excessively.

Some engines impose excessive vibration or torsional impulses on the distributor unit. Resulting damage generally shows up in the automatic advance mechanism. In order to withstand this type of service it is sometimes necessary to increase sections, use alloy steels, braze as-

semblies and harden parts in the automatic advance mechanism. Even with these precautions, the unit may still be subject to excessive gear or coupling wear and reproduce engine impulses into spark advance variation with possible reduction in engine performance.

The distributor cap and rotor are usually made of phenol resin com-

EDITOR'S NOTE: This is the second of a series of three articles on electrical equipment developed from a paper presented by Mr. Critchfield at the summer meeting of the Society of Automotive Engineers. The third part of his paper, dealing with starters, will be published in October.

IGNITION: THE KEY TO PERFORMANCE



By

R. M. Critchfield

Chief Engineer, Delco-Remy

Proper Selection, Installation and Maintenance of an Operating Efficiency for the Particular Job in Hand

pounds. The exact material depends upon service conditions. Standard phenol resin compounds may fail under certain conditions. Repeated surface moisture from condensation, rain or washing may cause leakage which, if continued, will cause permanent failure by carbonization of the surface of the material. Frequent applications of water, particularly if

these parts are hot will cause cracking of the standard phenol resin caps. Where it is impossible to eliminate this type of treatment, these parts can be molded with special compounds which better resist this action. If the cap is shielded ventilation should be provided.

Condensers are classed as standard or heavy-duty depending upon the

amount of insulation used and not the capacity. For some heavy units manufacturers have specified mica in place of impregnated paper for insulation between the condenser elements. Mica condensers are much higher in price and in view of the present development in the processing and impregnation of the paper insulation it is questionable if the additional cost is justified. Condenser life and performance are also affected by heat and moisture.

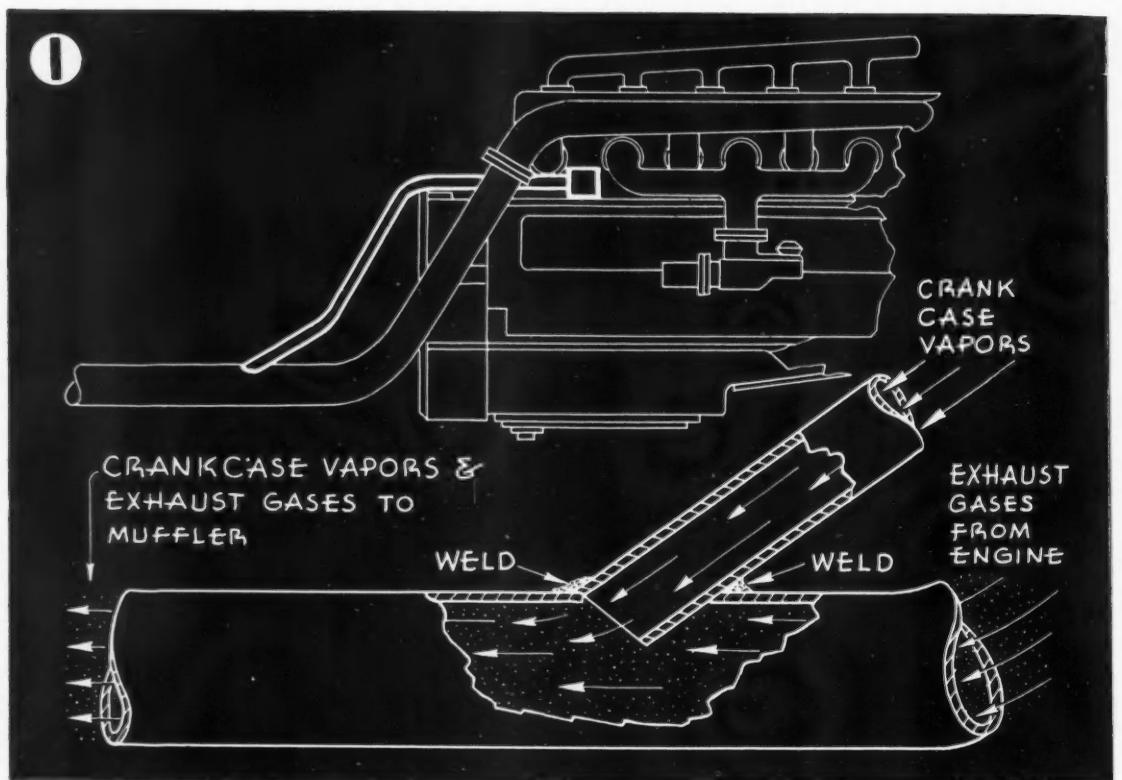
How to Select Coils

Standard ignition coils and those for heavy duty service are not necessarily different in performance. The characteristics of the heavy duty units are sometimes modified to emphasize their performance at low and intermediate speeds where heavy duty equipment generally operates. Insulation both of the winding and in the molded parts is generally special, better to withstand high mileage service and provide a greater margin of safety. Heavy duty coils are generally provided with additional heat dissipation surface to enable them to operate at lower internal temperatures and thus not only give better performance but longer life which lower temperatures permit.

Whether or not a vehicle is operated occasionally or whether it is operated on scheduled runs where freedom from failure and maintenance difficulties are of paramount importance, will probably determine justification for extra expense for ignition equipment which will provide still greater margin of safety and reliability than that provided by average passenger car equipment. Operation consistently within fairly narrow speed ranges also affects the ignition system performance.

There is a loss in performance if a coil is operated in a hot location. Experience indicates that the internal operating temperature of the coil should not exceed 240 deg. Since heat is generated internally, it is essential that the coil be so located and shielded that the surrounding air

(TURN TO PAGE 65, PLEASE)



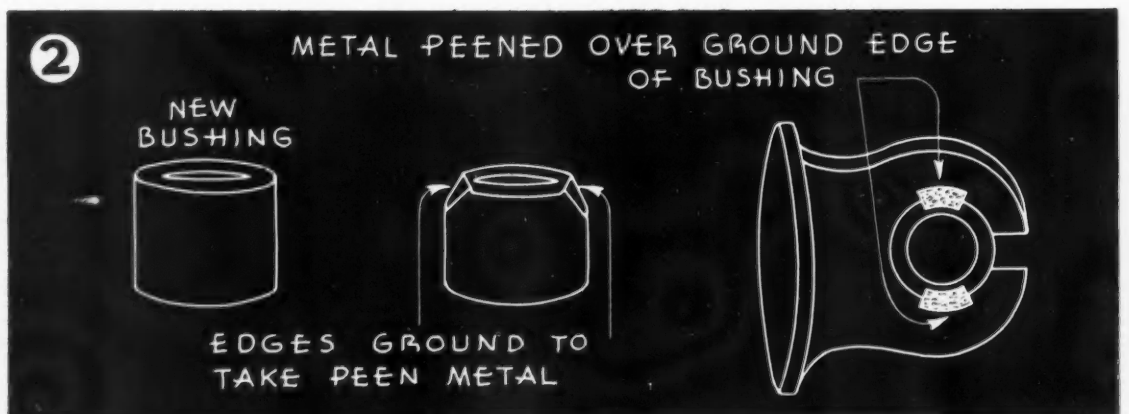
SHOP

HINTS

FROM FLEET SHOPS

\$5

Will Be Paid by Commercial Car Journal for Each Hint Accepted



1. Crankcase Ventilator

By Walker Pate

Madison, Tenn.

The device illustrated has been used on several large fleets to very good advantage. It provides crankcase ventilation on cold engines before the vehicle gets into motion as well as after the vehicle is under way. It gets away from the cold draft as a means of ventilation which is desirable because the cold draft tends to increase condensation.

The vacuum line can be attached to any point on the engine that is advantageous for removal of vapors. The other end attaches to the exhaust pipe at an angle of about 30 deg. The exhaust gas tends to create a vacuum which draws the vapors out through the exhaust.

2. Bushing Lock

By Frank P. Coulomb

Emsco Concrete Cutting Corp., Los Angeles

In some cases of trouble with Spicer universal joints we found that the bushing would work loose from the yoke of the joint flange. The bushings in the spline yoke stay in because they have a wire lock but the others work loose and due to centrifugal motion the bushing tears a hole in the cover. To remedy this condition when we install bushing we grind on opposite edges of the bushings andpeen the yoke over the ground portion. When new bushings are to be installed the old bushing can be easily removed and the yoke peened in a different position.

3. Drain Pan

By Frank P. Coulomb

The oil pans on all of the new trucks and cars are too low to permit the use of a pail for draining the oil and the ordinary type of drain pan that will fit under them is hard to carry. We made our own drain pans from five gallon oil cans. They prevent making a mess on the floor and at the same time are easy to carry when they are full of oil.

Simply cut out a portion of the top leaving the handle on and slide the cut-out portion under the engine drain. When the oil is drained the pan can be conveniently carried away.

4. Cracked Blocks

By Frank P. Coulomb

We were having trouble with cracked cylinder bores leading to the valve seats. We decided that the crack originated at the sharp edge at the top of the bore on the valve side. Jutting out as this edge does right into the flame it seemed to absorb more heat than the rest of the combustion chamber and since it had a sharp edge it was a natural place for cracks to start.

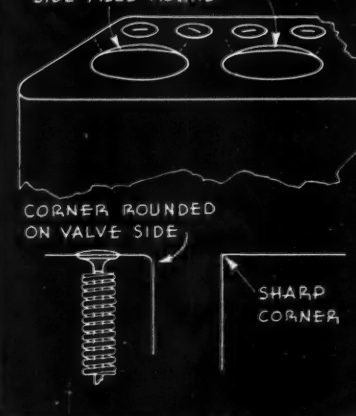
I took a half-round file and worked the edge down until it was rounded off to what seemed like a reasonable radius, approximately that illustrated. We have had no more cracked blocks since the engines have been campaigned.

5



4

ALL SHARP EDGES OF CYLINDER BORE ON VALVE SIDE FILED ROUND



5. Cross Member Reinforcement

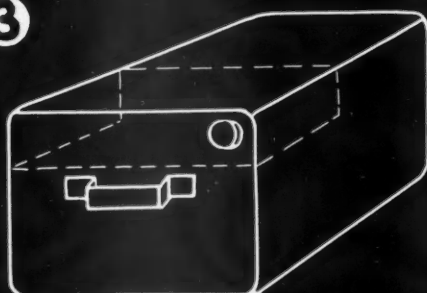
By Walter E. Wilson

Swanson Baking Co., Fitchburg, Mass.

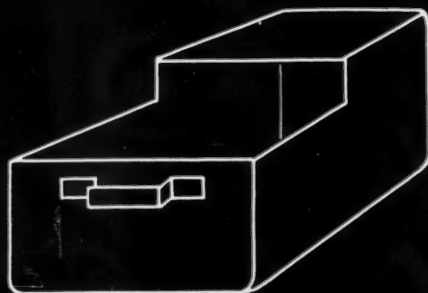
Our trucks get a great deal of back
(TURN TO PAGE 56, PLEASE)

Ideas Count — No matter How Rough. We Will Polish Them Up for Publication

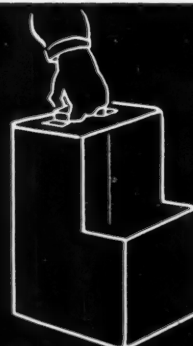
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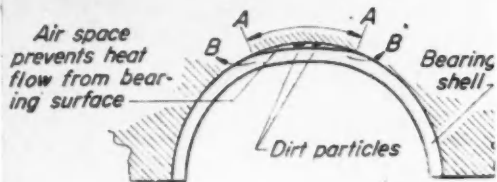
5 GAL. OIL CAN



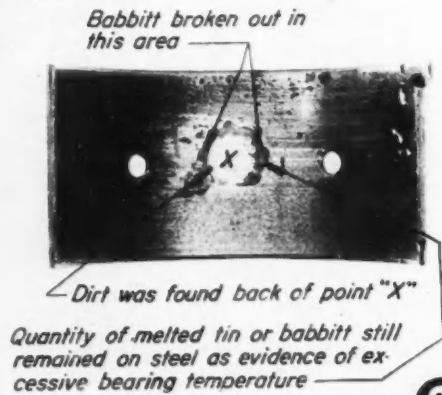
PART CUT AWAY



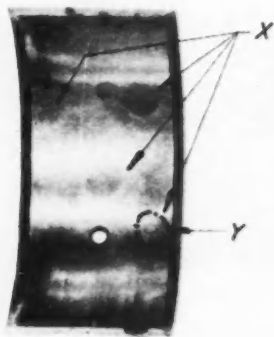
TO CARRY



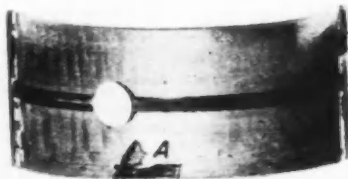
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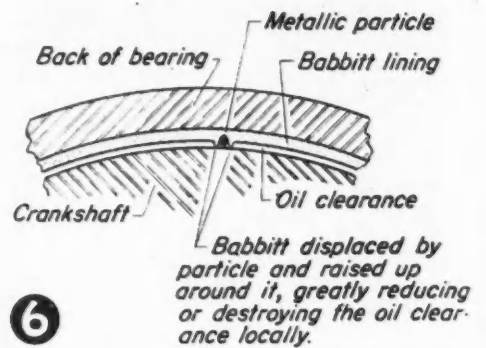


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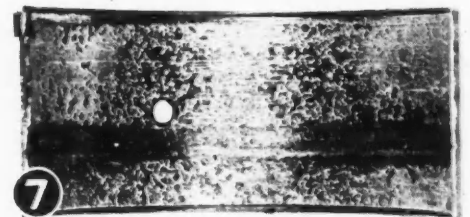


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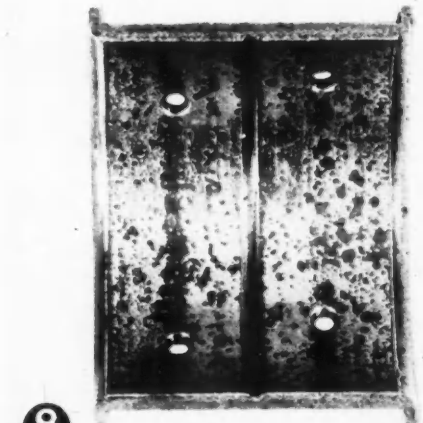
In this pictorial presentation of why engine bearings fail, the captions state the cause and the illustrations show the effect. It is not a complete set of the causes of bearing failure. It is a collection of the more easily distinguishable causes which lend themselves to photography. All of the material on these pages, both pictures and text was originated by Mr. A. B. Willi, chief engineer of the Federal-Mogul Corp., as part of a paper read by him before the Automotive Engine Rebuilders Association.



6

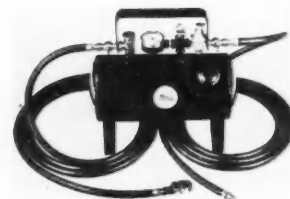


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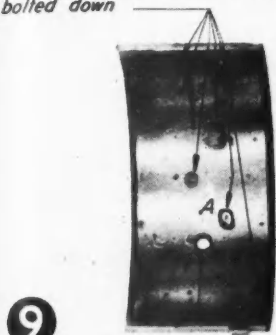
8

THE DEATH OF A BEARING



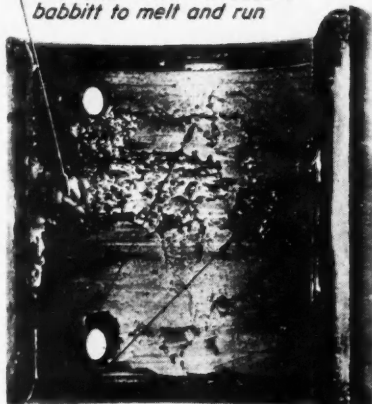
Bearing Tester

These splotches or scabby spots are impressions in the babbitt lining caused by dirt particles which adhered to the crankshaft at assembly. These particles were larger and thicker than the oil clearance and were imbedded into the babbitt when the cap was bolted down



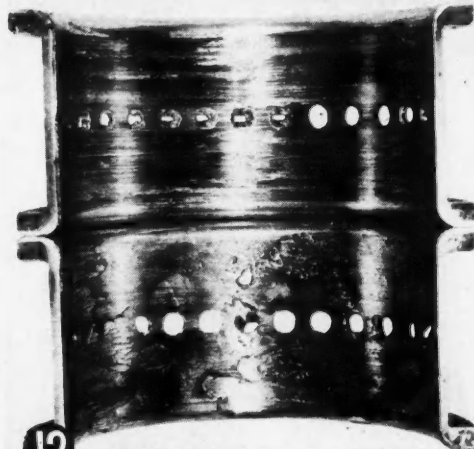
9

Frictional heat has caused babbitt to melt and run



11

Cracked up lining due to extreme heat

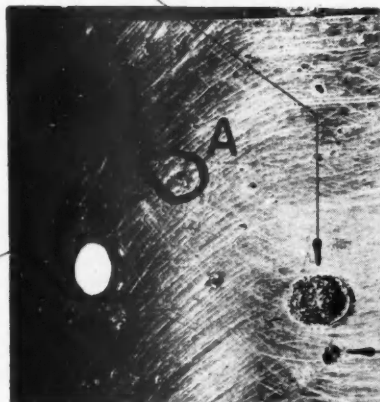


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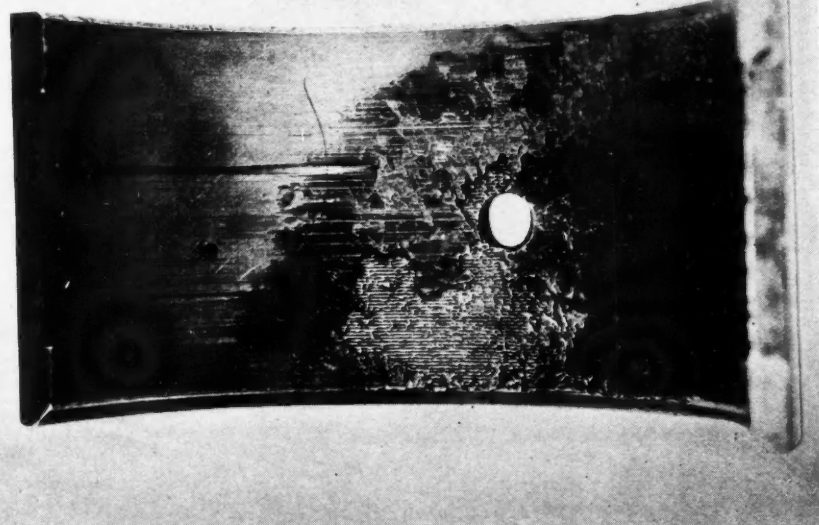
More hard carbon imbedded in babbitt

10

The dirt which caused this splotch or impression must have adhered very tightly to the shaft as it did not remain in the bearing



13



Pictorial sequence continued on next page

1. Bearing is not seating because there is dirt between bearing and crankcase bore. Heat which should flow through A-A area must flow to B-B. This results in excessive heat and babbitt failure.

2. Actual bearing failure in fairly advanced stage. Caused by a dirt particle between bearing and crankcase bore which prevented bearing from seating and resulting in excessive local heat.

3. Early stages of bearing failure. X shows the high pressure areas due to dirt on the back of the bearing. A metal particle was found imbedded in the back of the bearing at Y causing the trouble.

4. Moderately advanced stage of failure in precision bearing at 15,000 miles as a result of removing too much bearing stock in attempt to make new bearing fit cap that had been filed.

5. Back side of bearing shown in No. 4. Dark areas indicate no contact while bright areas are shiny indicating movement between bearing and cap which further impeded heat dissipation.

6. Cross section sketch showing that babbitt is displaced and not compressed when a particle becomes imbedded. The oil clearance is reduced or destroyed.

7. Bearing with a bad case of scurvy. Contracted as a result of countless imbedded particles. Undoubtedly due to failure to clean after cylinder reconditioning.

8. The black areas are masses of cast iron particles that cover the surface of the bearing. They will cause crankshaft scoring, high frictional heat and early bearing failure.

9. These splotches are impressions in the babbitt caused by particles adhering to the crankshaft at assembly. They were thicker than the oil clearance and became imbedded when the cap was bolted down.

10. Enlarged impression caused by a particle which made a crater but did not stick in it. A hunk of hard carbon is imbedded at A.

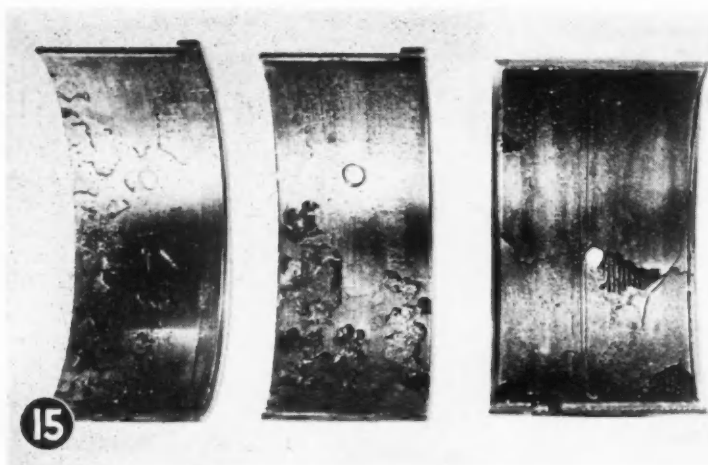
11. Remains of a bearing after the oil supply had failed. There may have been oil in the crankcase but if there was the screen or a line was plugged with sludge or other foreign matter.

12. Cadmium silver bearing which has completely failed because of insufficient oil clearance. Note how lining metal has been wiped out of upper half and deposited on lower half.

13. This bearing used on a 4 in. diameter crankshaft with .0015 in. clearance failed because of insufficient oil clearance. With .004 in. clearance normal results were obtained.

DEATH OF A BEARING

(CONTINUED)

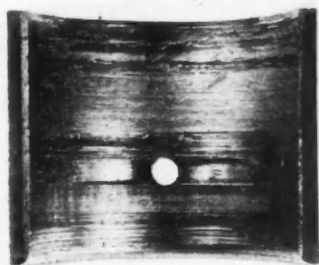


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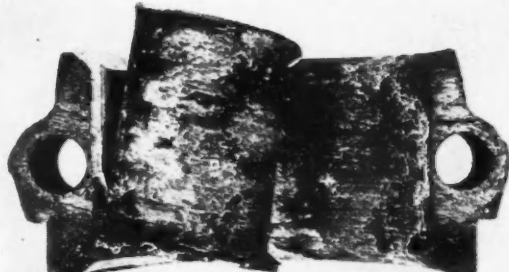
14. Another result of insufficient oil clearance. The bearing has been wiped and scored. Premature failure will surely follow.

15. These bearings have been overloaded by overspeeding the engine or by using the engine as a brake. Note that areas of failure are distributed over practically all portions of the bearing area.

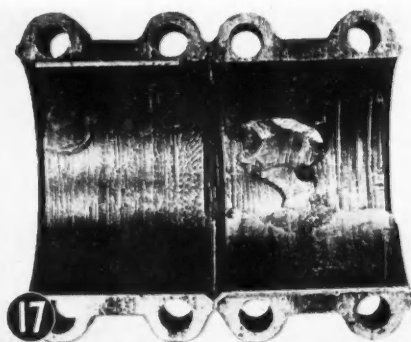
16. Babbitt pulled away from the connecting rod



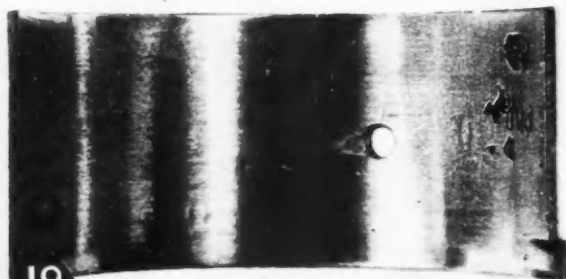
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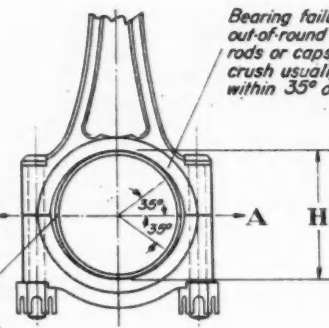
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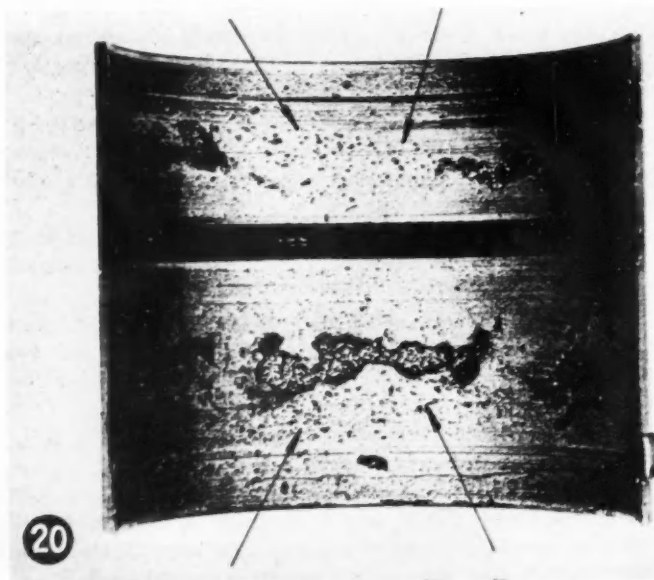
Clearance of bolts permits rod to spread outwardly along line A-A

Gap between O.D. of bearing and bore of rod. This gap fills with oil and heat conductivity is seriously impaired



Bearing failure due to out-of-round and spread rods or caps and loss of crush usually occurs within 35° of the parting

19



20

cap. The forging was improperly prepared for babbitting.

17. A connecting rod that has failed in service because of poor bond. This condition is definitely indicated because the surface of the forging is completely devoid of tin.

18. Failure in a thin wall steel back precision insert due to out of roundness. It is due to a distorted or warped forging.

19. Out of round connecting rod. Clearance at bolts permits rod to spread A-A. Gap between O.D. of bearing and bore of rod fills with oil impairing heat conductivity. Bearing failure usually occurs within 35 deg. of parting.

20. Copper lead bearing that has failed because of corrosion. Lead has been washed out at black spots. In larger failure areas remaining porous copper structure has broken down.



Above: Louis Unser, three-times winner of the Pike's Peak race, piloted the Chevrolet up the sensational run. Right: Driver Hartz and AAA Observers Bennett and Reed take time out at the lowest point of the run. Below: A Kansas dust storm in full blast does its bit to make the going still tougher for both truck and drivers

OPERATING RESULTS OF A TRUCK TEST RUN COVERING

53,825 MI.

1. Leave Detroit, Jan. 11, 1938.
2. Pass 50,000th mile of test running at Spokane, Wash., June 14, 1938.
3. Total test miles upon return to Detroit (July 5, 1938), 53,825.
4. Net running time, 1660 hr., 55 min.
5. Average speed, miles per hour, 32.41.
6. Weight: Gross, with driver and observer, 9260 lb.; load, exclusive of driver and observer, 4590 lb.
7. Total gasoline consumed (U. S. gallons), 3509.1.
8. Miles per gallon of gasoline, 15.37.
9. Ton-miles per gallon of gasoline (gross weight), 71.16.
10. Gasoline cost, average per gallon, 20.1 cents.
11. Gasoline cost, total, \$705.92.
12. Gasoline cost, per mile, \$.01312.
13. Gasoline cost, per ton-mile, \$.00283.
14. Oil changed after leaving Detroit, 23 times.
15. Total oil added between regular changes, 2 qt.
16. Total cost of oil after leaving Detroit, 23 fills (115 qt.), and two quarts additional, \$39.73.
17. Oil actually consumed from start of run to crankcase drain at 53,825 mile mark, 40.80 qt.
18. Miles per quart of oil consumed, 1320.
19. Cost of oil consumed (40.80 qt. @ 34c. qt.), \$13.87.
20. Total lubrication cost, chassis greased 27 times, front wheels repacked four times, oil in oil bath cleaner changed five times, trans-

EDITOR'S NOTE: These results of Chevrolet's long distance safety and dependability run which started in Detroit and touched such points as Ottawa, Mexico City, Maine, San Francisco, New York, Seattle and Pike's Peak, are given here just as attested by the Contest Board of the American Automobile Association, in the belief that fleet operators may find some of the facts interesting in themselves or as a possible basis for comparisons.



mission and differential lubricant changed three times, \$43.38.

21. Total cost, gasoline, all oil used (Item 16) and lubrication, \$789.03.

22. Mechanical work, periodic inspections and replacements:

Align front wheels (twice), \$1.30.

Check tappets (all o.k.), \$.75.

Change oil filter cartridge four times, \$5.00.

Tune motor, twice—includes ignition points, etc., \$7.85.

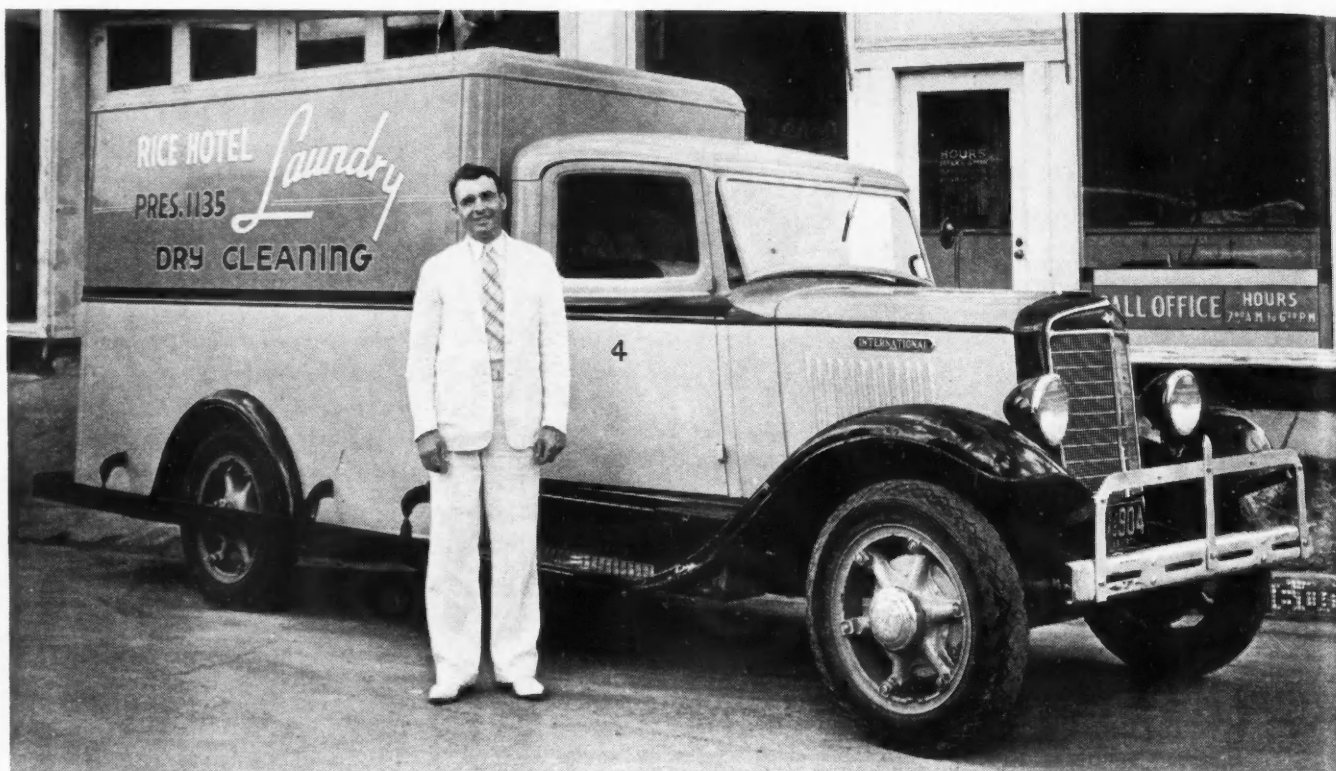
Clean and adjust ignition points and spark plugs, \$.95.

Clean carburetor, \$1.20.

Wheel nut replaced when shifting tires, \$.10.

New set of spark plugs (twice), \$7.92.

(TURN TO PAGE 56, PLEASE)



Superintendent Wright, above, is proud of his fleet's record. As insurance against damaged grilles, fenders and bodies, each truck wears a virtual armor plate of spring steel. Note the all-height front bumper and the body guard rail

TO GET PROPER SHOP EQUIPMENT I GAMBLER MY PAY

**And Got a Raise Out of the Savings, Says
Texas Fleetman, Who Tells How He Maintains
a 35-Truck Laundry Fleet to Earn One of
the Lowest Cost-per-Mile Figures on Record**

By
C. A. Wright

**Fleet Superintendent, Rice Hotel
Laundry, Houston, Tex.**

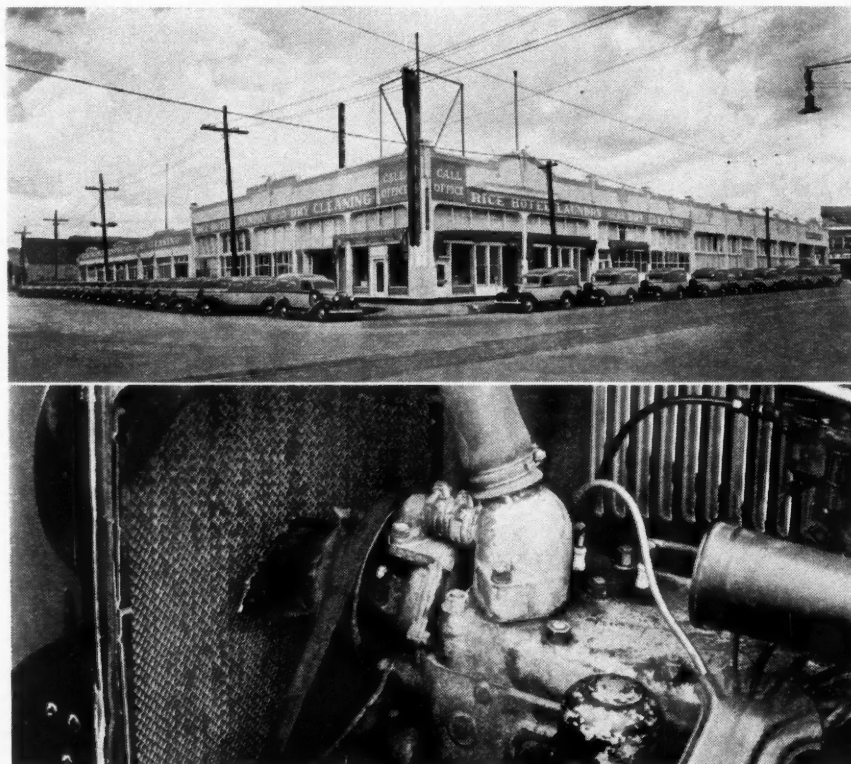
THE vice-president of one of America's largest truck manufacturing companies told us that our fleet operation and maintenance cost of from $3\frac{1}{4}$ to $3\frac{1}{2}$ cents per mile for the entire fleet under all conditions and covering every phase of operation and maintenance was the lowest in America as recorded by his firm. His only criticism was that the truck manufacturers could not profit greatly because we have trucks with as much as 115,000 miles and yet operating with the original pistons and we have other trucks of some 75,000 miles with the original pistons and wrist pins, having only had new rings.

Most of our fleet of 35 trucks have more than 50,000 miles registered, and 10 of the trucks have been completely charged off through depreciation. This record has been attained by a plan of trouble prevention rather than a policy of overhauling and repairing . . . during the past four years we have rebuilt only three motors.

The biggest problem in fleet main-

Service Steps That Put a Laundry's Truck Costs Through the Wringer

1. Complete engine analysis to fit each truck to its particular route
2. Engine tune-ups on a rotation basis regardless of mileage
3. Rigid control of engine heat (170 to 180 deg.)
4. Careful selection of ignition and other electrical parts
5. Maintenance of generator output between 6 and 9 volts
6. Use of carbon solvent oils at regular intervals
7. Use of high quality light oil (S.A.E. 20 or 30)
8. Analysis of oil to determine need for drain (average 6000 miles)
9. Use of heavy-duty oil filters
10. Control of speed by governors set to 30 m.p.h.
11. Protection of bodies by special guards
12. Use of manual chokes with snap-back springs
13. Careful monthly check of gasoline mileage for each truck
14. Daily tire inspection to maintain pressure
15. Retreading of all 6-ply tires if casings are OK
16. Complete shop facilities for engine tune-up and overhaul, brakes, washing, lubrication, welding, frame aligning, body work, painting and washing



Top: After the Sunday wash, the entire fleet is lined up for public display
Above: Fan blades sawed off or wholly removed keep temperatures on the mark

tenance today is that of selling management upon the importance of proper tools and equipment for servicing today's modern fleets. The old days of a handy man tinkering with pliers and screwdriver to analyze motor trouble and correct the matter are gone. Yet many executives do not realize this fact and it is up to fleet superintendents to educate management to realize that motor maintenance is a scientific problem and one that must be approached with precision equipment.

We have lowered our cost and improved efficiency greatly since purchasing motor analyzing equipment. As only natural, the management could not see the logic of investing \$400 in this equipment. As superintendent, I suggested they pay for the equipment and then deduct \$5.00 weekly from my salary to cover the charge, for superintendents must continue to be students today to keep up with progress in automobile design and engineering.

My boss made a counter proposition. Seeing my faith in the equip-

ment, the boss took me up. In the end my \$5.00 weekly payments were returned, and I received a \$5.00 a week increase in salary, justified by the savings made on the fleet.

Motor vehicles are manufactured to operate in Alaska in the same manner as in Asia, and motors are designed for conventional running on city streets at low speed or over mountain highways at high speed. There is no consideration given to differences in altitude, which affects the vacuum, or to the fact that even two different trucks of the same make and model will operate differently. We have corrected our fleet to adjust each truck in such a way as to get maximum efficiency for it as determined by its operating conditions.

For example, the most economical heat range for a motor is 170 to 180 deg. F. The heat range should never be less than 160 deg. F. to realize normal efficiency on gas, as this temperature is necessary to dispose of crankcase condensation; and even 190 deg. is better than a low of 140.

As most of our trucks are used on

short runs, down-town service and house to house service, they are often idling more than they are running, and the motors run cool. We have cut two blades from fans of four blades to help raise the heat, and on some trucks, we have even cut the two remaining fan blades in half. All trucks are equipped with thermostats, some with two of them, one in the gooseneck and one in the hose connection.

With proper control of motor heat, we get maximum gas efficiency. For instance, we have two 1½-ton trucks that operate between the plant and down-town hotels, making a 15-min. run and standing for 45 min.; then repeating this routine throughout the day. Originally these trucks gave 4 to 5 miles per gallon of gas and it was impossible to keep rings and clean motor oil in them. We adjusted the equipment to assure proper motor heat and the trucks now give 8 to 11 miles per gallon of gasoline plus better motor performance in every way.

(TURN TO PAGE 50, PLEASE)

PRIVATE CARRIERS

Form Independent National Organization to Safeguard the Operation of Their 3,500,000 Not-for-Hire Trucks

TO safeguard their interests in the operation of 3,500,000 trucks which are not for-hire, the private truck owners of the country—manufacturers, farmers, merchants and others—now have their own organization, the National Council of Private Motor Truck Owners. This organization was formed in Washington on July 28 at a meeting attended by representatives of 20 truck-using vocations.

At the meeting by-laws were adopted and 16 members of the Board of Directors named. Eight directors are still to be chosen. When completed the 24-man board will meet and choose from among its membership a president, three vice-presidents and a treasurer. The 16 directors named so far are:

P. Arnold Anderson, Private Motor Carriers Bureau of California, San Francisco; James C. Bennett, Automotive Council, San Francisco; Fred Brenckman, The National Grange, Washington, D. C.; H. E. Bucklew, American National Laundry Assn., Joliet, Ill.; Cecil H. Fisher, Institute of Makers of Explosives, Wilmington, Del.; N. W. Ford, Manufacturers Association of Connecticut, Hartford, Conn.; Robert C. Hibben, International Assn. of Ice Cream Mfrs., Washington, D. C.; O. M. Kile, Mail Order Assn. of America, Washington, D. C.; F. E. Mollin, American National Live Stock Assn., Denver, Colo.; R. J. O'Hare, International Assn. of Milk

Dealers, New York; L. F. Orr, Pet Milk Co., St. Louis, Mo.; W. H. Ott, Kraft-Phoenix Cheese Co., Chicago; F. E. Packard, Central Division Chairman, American Petroleum Industries Committee, Chicago; John B. Pymer, American Bakers Assn., Baltimore, Md.; H. E. Pugh, United States Brewers Assn., New York, and John F. Winchester, American Petroleum Industries, Committee, New York.

The by-laws adopted declare that "This Council will be devoted to promoting the safe and economic use of highway transportation by agriculture and industry in private motor trucks. It will cooperate with existing organizations and groups having similar objectives."

Those eligible for active membership, according to the Council's by-laws, are:

1. A trade association whose members use their own motor trucks, incidental to their business, upon the highways, roadways, streets or other thoroughfares of the United States.

2. Individuals or firms who use their own motor trucks, incidental to their business upon the highways, etc.

3. State associations of private carriers, or the division representing private carriers in a state motor truck association representative of all classes of truck owners.

Any person, firm, co-partnership



or corporation with interests in common with this organization, not eligible to active membership, is eligible to become an associate (non-voting) member.

The dues of active membership are as follows:

Trade Associations (Annual dues based on number of trucks owned by their members): Up to 10,000 trucks, \$100; up to 20,000 trucks, \$200; up to 30,000 trucks, \$300; up to 40,000 trucks, \$400; over 40,000 trucks, \$500.

Fleet Owners: Up to 10 trucks, \$10; up to 50 trucks, \$25; up to 100 trucks, \$50; over 100 trucks, \$100.

State Private Motor Truck Associations, or Private Carrier Divisions of State Truck Associations: \$100.

Associate Members: \$25.

The proposed activities of the National Council, have been divided into two classes: those which require immediate attention and those which, while important, are considered less expedient. Among the immediate problems are:

1. Assimilation of views of members
(TURN TO PAGE 70, PLEASE)

SIZES & WEIGHTS

Investigation Is Outlined by ICC to Guide All Interested Parties; Scope of Inquiry Very Comprehensive

time regards as essential are indicated below. To expedite the work, lessen the demands on the interested parties who plan to participate in the conduct of the inquiry, and to reduce points of difference between those who take part, the Commission will, so far as practicable, assemble and analyze statistical and other data bearing on each of the topics indicated in the outline. To the extent that it is feasible, the Commission's data will be incorporated in tentative reports of its staff, to be released prior to hearings or to completion of hearings. Additional data on these subjects and on others which the parties consider pertinent may, of course, be presented by those who participate in the hearings. Further to keep the hearings within reasonable proportions, those who plan to submit testimony are advised to consult with the Bureau of Motor Carriers with a view to ascertaining whether the particular testimony they wish to offer will duplicate material which will otherwise be available or that it will be considered pertinent to the issues. Hearings will be held in various parts of the country, at dates to be announced.

Outline of Investigation


I. Limitation prescribed by the States, reasons therefor, and States' views as to their effects.

While the Commission is advised as to the major limitations prescribed

by the individual States, it desires to have for the record and the purposes of its report a detailed statement, duly authenticated, of not only existing but earlier limitations. An inquiry of this kind will go to the Governors of the respective States for reference to the appropriate officials. It will also include such topics as limitations imposed by subdivisions of the States and seasonal changes in the limitations. These officials will also be asked to indicate, so far as it is possible for them to do so, the particular purposes (highway safety, protection of roads, etc.) sought to be accomplished by these regulations and how far such purposes have been realized. An effort will be made to determine wherein and how far changes in the limitations over a period of years have reflected changes in the road and bridge facilities, on the one hand, and in the vehicles themselves and their methods of operation, on the other. The States will also be asked to furnish copies of all special investigations, hearings, court and commission decisions, etc., which bear on the subject matter.

As stated above, all of this material will be digested and analyzed to afford in brief compass a picture of conditions from the point of view of the States. Preparation of a report on these matters will not, of course, preclude the States from sup-

(TURN TO PAGE 72, PLEASE)



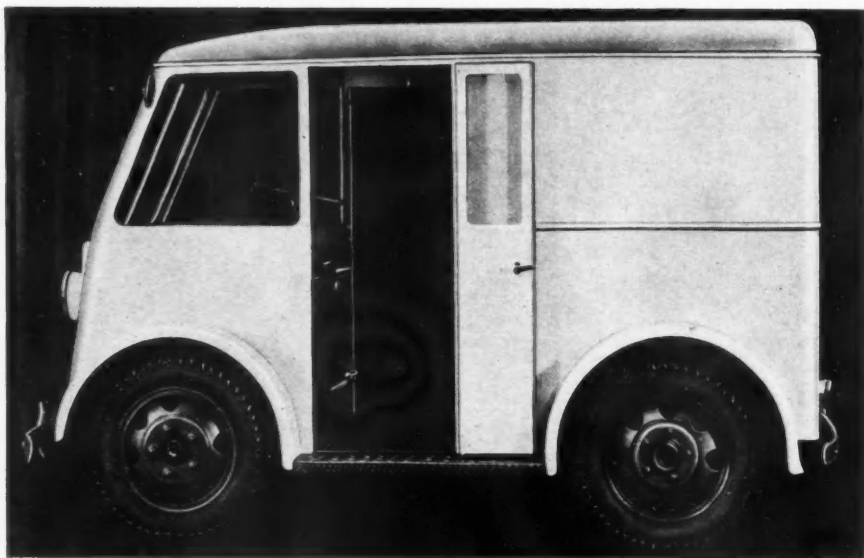
THE Interstate Commerce Commission has announced the outline of its investigation in the matter of regulations governing the sizes and weights of motor vehicles used by common, contract and private carriers in interstate and foreign commerce.

Issuance of the outline was the first step in the investigation which was instituted by the ICC on Nov. 8, 1937, for the following purposes:

1. To enable the Commission to make a report to Congress under the provisions of section 225 of the Federal Motor Carrier Act on the need for Federal regulation of the sizes and weights of motor vehicles and combinations thereof, and

2. To enable the Commission to prescribe reasonable requirements under the provisions of section 204 of the Act as to the sizes and weights of motor vehicles and combinations thereof in so far as they affect the safety of operation.

In keeping with the importance and complexity of the problems presented, a comprehensive type of investigation has been laid out. The topics which the Commission at this

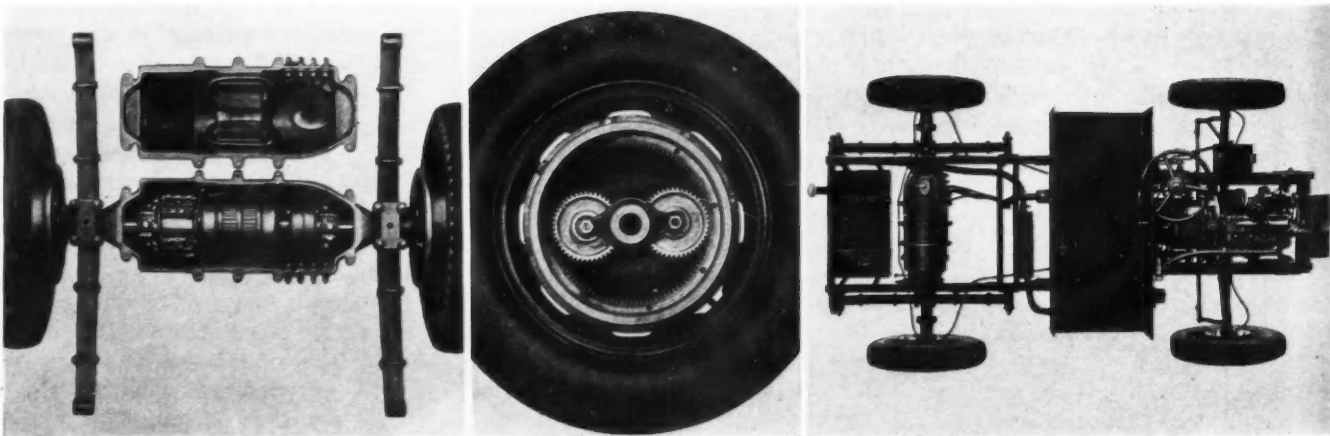


Extremely easy to handle because of its electric drive, model 500 also provides quick entrance for the driver through wide, full-height doors

WALKER

GAS-ELECTRIC

**Model 500 Combines Advantages of Gas and Electric
Units for Low-Cost House-to-House Delivery Service**



Left: The single driving motor and a universal joint are incorporated in the rear axle assembly. Center: Final drive is through a pinion, two idler gears and an internal gear on the wheel. Right: Only wires connect power unit with motor

THE Walker Vehicle Co., Chicago, Ill., has announced the model 500 Dynamotive truck, a gas-electric delivery job. The chassis weight is 3100 lb., the truck complete weighs 4450 and the gross weight is 7000 lb.

The truck is powered by a four-cylinder Waukesha engine. It has a bore of $3\frac{1}{4}$ in. and a stroke of 4 in. for a displacement of 133 cu. in. Maximum horsepower is 36 at 2800 r.p.m. and the torque is 92 lb.-ft. at 1200 r.p.m.

Naturally there is no clutch, transmission or drive line. Consequently there is no shifting of gears on acceleration or at any other time. The Walker generator is located in the flywheel bell housing and the motor is located transversely in the rear axle connected to the generator only by wires. The axle housing forms the magnet frame of the motor in which the field coils and poles are mounted. The armature is built on a hollow shaft upon one end of which the differential is mounted. Drive shafts extend from the differential to reduction gears at the wheel hubs which revolve on full floating axles. The drive shaft has a pinion which drives two idler gears which in turn drive an internal gear on the wheel. All gears operate in a bath of oil.

The generator is of shunt-wound design giving a continuous output of 15 kw. The bell housing in which it is located is ventilated and there is
(TURN TO PAGE 83, PLEASE)

A NEW stop-and-go truck designated as the "Special Delivery" is being produced by the General Motors Truck and Coach Division of the General Motors Co., Pontiac, Mich. It is of cab-over-engine design and on a 112 in. wheelbase chassis it provides a 108 in. flat floor loading space. The interior dimensions of the insulated body are 66 in. high and 68 in. wide.

It is mounted on a chassis incorporating the 230 cu. in. engine of 3 7/16 in. bore and 4 1/8 in. stroke. The engine develops 86 h.p. at 3500 r.p.m. and a maximum of 172 lb. ft. of torque. The 15 1/2 gal. fuel tank is located under the body floor with a filler cap outside the body on the right side.

Gear shifting is by remote control on the steering post of a three-speed gear box. Brakes are two-shoe hydraulic. The hand brake is a mechanical hook-up on the rear brakes. Front drums are 11 in. diameter and rear are 14 in. diameter.

The tool box of the truck is the base of the driver's seat and the hand brake lever is short enough to make it possible for the driver to leave from the right side without difficulty. There are step wells on each side with steps one foot from the ground.

Loading and unloading is facilitated by a full width extension step at the rear and the body floor averages 31 in. from the pavement. All steel front doors which may be locked either open or closed slide into body recesses. The rear door is sealed against weather and is provided with spring tension locks. A double door is available at extra cost.

The engine is made accessible by lifting an insulated plate from the floor of the driving compartment. The powerplant is provided with a heavy-duty starter especially designed for stop and go service and a generator which provides a high rate of charge during slow speed operation.

Driver vision is extremely good. With very little difficulty he can see the bumper. A wide front axle adds to the maneuverability of the vehicle. Standard tire size is 7.00/16 with 7.50/16 available.



Eye appeal enhances the value of the new GMC Special Delivery to a wide range of vocations such as department stores, florists, laundries and dairies

G. M. C.

SPECIAL DELIVERY

New 86-h.p. "Stop and Go" Unit Provides 108 in. of Flat Floor Loading Space on a Wheelbase of 112 in.



Left: The flush-type insulated hatch provides easy access to the engine below. Right: 66 in. high and 28 in. wide, the body has unusual loading space

Form 1
Form prescribed by the
INTERSTATE COMMERCE COMMISSION.

DRIVER'S DAILY LOG
ONE CALENDAR DAY ONLY

Original - File at home terminal for 1 year
Duplicate - Driver to keep for 1 month

DATE July 15 1938
(Month) (Day) (Year)

Name of Motor Carrier
X.Y.Z. Transportation Co.

Main office address
Washington, D.C.

No motor vehicle shall be driven by any driver while his ability or alertness is so impaired through fatigue, illness, or any other cause as to make it unsafe for him to drive or to continue to drive a motor vehicle. (Safety Regulations, Part II, 5.)

Driver's signature John D. Doe

Home terminal Baltimore, Md.

Company Accounting No. 000

Mileage 161
(today's)

Mid.	1	2	3	4	5	6	7	8	9	10	11	Noon	1	2	3	4	5	6	7	8	9	10	11	TOTAL HOURS
1	OFF DUTY - ALL TIME OFF DUTY, EXCEPT TIME SPENT IN SLEEPING BERTH.																							12 1/2
2	OFF DUTY - TIME SPENT IN SLEEPING BERTH.																							-
3	DRIVING OR OPERATING - INCLUDING INCIDENTAL STOPS NOT IN EXCESS OF 20 MINUTES.																							7 1/2
4	RIDING - NOT IN SLEEPING BERTH, BUT INCLUDING INCIDENTAL STOPS NOT IN EXCESS OF 20 MINUTES. (SPECIFY IF DEADHEADING)																							-
5	ON DUTY - LOADING, UNLOADING, MAKING OUT REPORTS, ETC.																							2 1/2
6	ON DUTY - INCIDENTAL STOPS FOR MEALS, COFFEE, GAS, ETC.																							1
7	ON DUTY - WAITING FOR WORK, OR TO BE RELEASED FROM WORK, OR FOR LOADING OR UNLOADING, ETC.																							1/2
8	ON DUTY - EMERGENCIES DUE TO FLOODS, STORMS, ACCIDENTS, OR SIMILAR CONDITIONS. (EXPLAIN)																							-
9	<p>ENTER THE NAME OF THE PLACE WHERE YOU MAKE EACH CHANGE SHOW THE TIME AT WHICH YOU CROSS ANY STATE LINE USE TIME STANDARD OR DRIVER'S HOME TERMINAL</p> <p>From <u>Wash. D.C.</u> To <u>Baltimore, Md.</u> To <u>Boston, Mass.</u></p> <p>Origin <u>Wash. D.C.</u> Final destination <u>Boston, Mass.</u></p>																							<p>SUMMARY</p> <p>OFF DUTY 12 1/2</p> <p>DRIVING 7 1/2</p> <p>ON DUTY 4</p> <p>TOTAL 24</p>

For REMARKS - Use reverse side of sheet

Oct. 1, 1938 is the effective date for the ICC Hours of Service Regulations. An example of the way in which the prescribed ICC Daily Log should be made out is shown above. A complete explanation is given at the end of this article

ICC REDUCES TO STATISTICS 128,000 INTERSTATE FOR HIRE DRIVERS

And Produces an Average "Spinner" 5 ft. 8 in. Tall,
33 Years Old, with 13.6 Years of Driving Experience

THE Bureau of Motor Carriers of the Interstate Commerce Commission has made an analysis of information furnished by common and contract carriers relating to drivers engaged in interstate commerce. Although returns were made by 22,532 carriers and covered 128,038 drivers the analysis was limited to a selected Sample. The sample was chosen to reflect the same distribution of carriers as to sizes and states as was

found in the complete returns. In the sample the returns of 7239 carriers employing 40,107 drivers were analyzed. This was equivalent to 32.1 per cent of the total companies reporting and 31.3 per cent of the total number of drivers reporting. A further check of the representativeness of the sample is provided by the fact that the average number of drivers per carrier based on the total returns was 5.68 while the aver-

age number in the sample analyzed was 5.54.

Of these 40,107 drivers 2 per cent were 15 to 19 years old, 37.7 per cent were 20 to 29 years old and 38.7 were 30 to 39 years old. In the 40 to 49 bracket were 16.3 per cent of the drivers while the 50 to 59 age group consisted of only 4.5 per cent and for 60 and over the percentage dropped to .3 per cent. Included (TURN TO PAGE 84, PLEASE)

Why it pays to USE ONLY TESTED G-E BULBS ON YOUR TRUCKS

THE headlight bulbs you use on your trucks can make a great difference in the kind and amount of light your drivers get on the road at night. One way to be sure they are getting all the light possible is to replace burned-out or blackened bulbs with G-E MAZDA Auto lamps . . . the kind that are approved by all automobile manufacturers and used by most of them as initial equipment.

General Electric MAZDA Auto lamps are accurately made and tested for 165 possible defects before you buy them for your trucks. Because of this, the chance of finding a defect that may affect their performance in service is reduced to less than one in a thousand.

Inferior bulbs often grow dimmer and dimmer in use and fail to give all the light possible. Why take chances . . . when G-E MAZDA Auto lamps *Stay Brighter Longer* and put more useful light on the road where your drivers need it. Order a supply of G-E MAZDA Auto lamps from your jobber today.

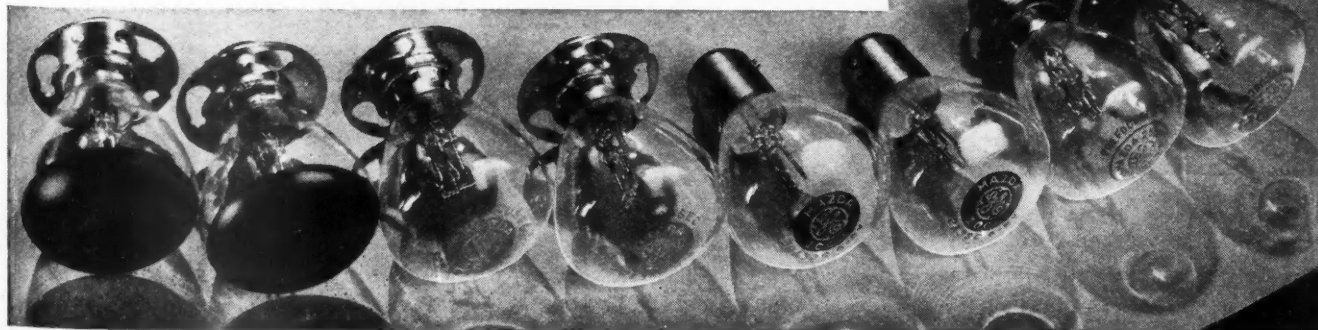
FREE 16-PAGE BOOKLET WITH 77 ILLUSTRATIONS

The 11"x14" booklet shown here tells how to install bulbs, how to adjust and service headlamps, and gives other worthwhile information. Write General Electric Co., Dept. 166 CC, Nela Park, Cleveland, Ohio. State number of trucks operated.

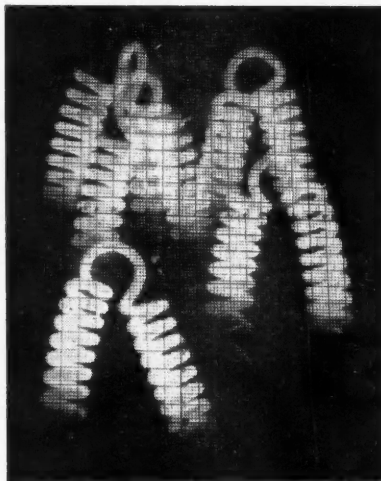


GENERAL ELECTRIC MAZDA AUTO LAMPS

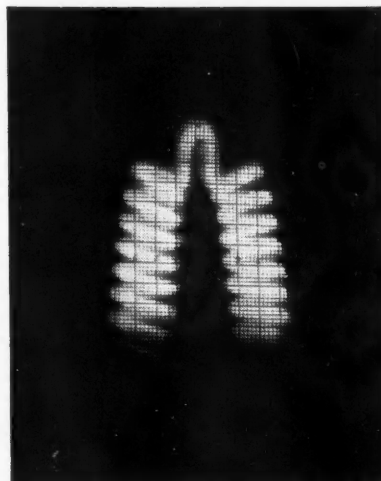
"They Stay Brighter Longer"



See the difference
between dangerous
and safe headlights!



Composite photo of filaments from 5 inferior lamps projected on the screen of a focal gauge. Decidedly unsafe . . . when a difference of only one degree in position of lamp filament throws headlight beam 21 feet off at 100 feet ahead of truck.



Composite photo of filaments from 5 G-E MAZDA prefocused lamps projected on the same screen under same conditions. Note how closely they conform with each other. Uniform quality . . . greater safety for your trucks.

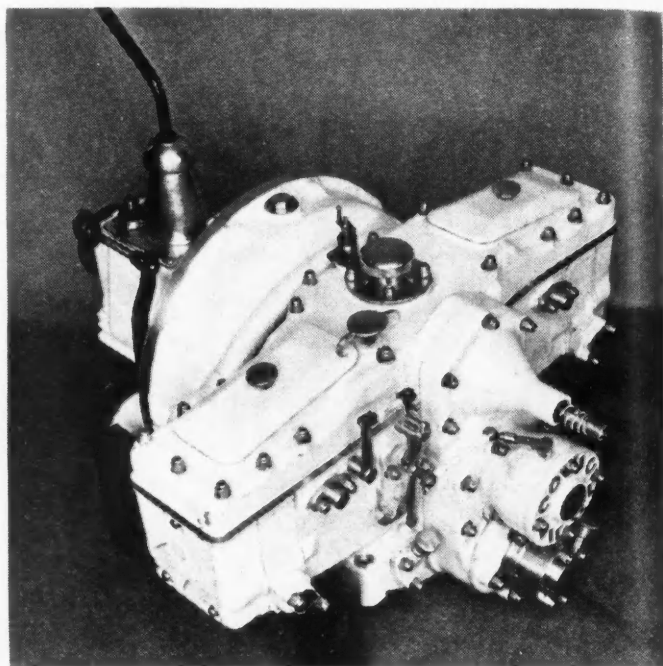
18 H.P. COVIC DIESEL FOR SMALL TRUCKS

THE Northill Co., Inc., Los Angeles, Cal., has announced that production of the Covic diesel engine has already started. The engine is a two-cylinder, four-cycle 18 hp. engine. It will be furnished in bare engine form for truck manufacturers as well as with starter and four speed transmission for replacement. The announcement is made by John K. Northrop vice-president and executive engineer of the company. Mr. Northrop was formerly president of the Northrop Corp. and the Douglas Aircraft Co. The engines will be made in the plant of the Menasco Manufacturing Co., makers of aircraft power plants.

The engine is an overhead valve type of 3 5/32 in. bore and 3 15/16 in. stroke. The displacement is 61 cu. in. The bare engine weighs 280 lb. with flywheel and as a complete automotive unit with starter, generator and transmission, 425 lb. Total width is 30 in., height 19 1/2 in. and length 19 in. It is designed for laundry, milk and other city delivery trucks.

The two-throw crankshaft is supported by ball and roller bearings at the main bearings and the connecting

The two-cylinder horizontally opposed Covic diesel has 61 cu. in.



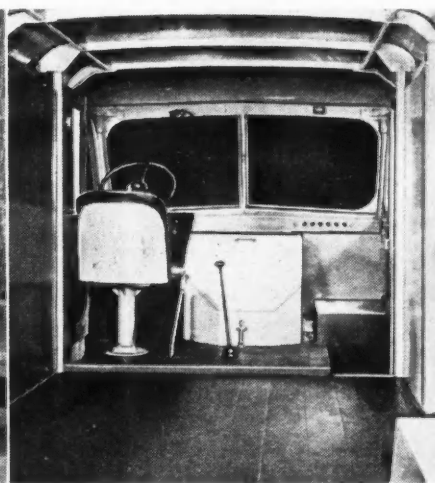
rods have needle bearings at the crankshaft end. The upper ends of the connecting rods are bronze bushed. Crankcases are of aluminum or cast iron. There is a separate casting for the sumo which provides a water jacket for cooling the lubricating oil. All oil passages are cored.

A patented combustion chamber is formed by screwed-in inserts. Cylinder liners are held in place by cast iron heads. The camshaft is driven by a double chain. The lubrication is full pressure except to the wrist pins.

The fuel pump assembly is above the cylinder block enclosed by an aluminum plate which can be removed without tools. Bosch pumps and injectors are used. The water and oil pumps are driven by the same shaft and water passes over and around the oil pump to further cool the lubricant. The entire pump group is accessible by removing 6 studs.

Cylinder head cover plates are held by 3 studs. Less than one hour is required to remove the camshaft and cylinder heads. Less than half day is required for renewal of cylinder liners, pistons and rings.

DODGE INTRODUCES CITY-TYPE PANEL DELIVERY



The new Dodge city-type panel delivery on the 3/4 to 1-ton chassis completes the company's line of trucks designed to service bakers, laundries, department stores and similar concerns. Body is by Metropolitan. Features include even distribution of weight, exceptional visibility, accessibility to engine which has a heat-proof cover, curb-level driver's entrance and high, sliding doors. The body is 9 ft. long to rear of driver's seat, 62 in. high, 68 in. wide



Detroit Street Railways select Exides for one of the country's largest fleets

OPERATORS of a fleet of buses and operators of a fleet of trucks or commercial cars have much in common. Both types of vehicle must be able to go on schedule, and keep on the road. They both must pay their way in terms of hard cash. That is why the battery experience of bus operators can have a real meaning for you.

Detroit Street Railways operate one of the largest bus fleets in the country—1267 units in all. In ordering 750 new buses such as the one shown above, this operator specified Exide Batteries exclusively. Exides were selected because of the confidence Detroit Street Railways feel in the dependability and economy of these batteries.

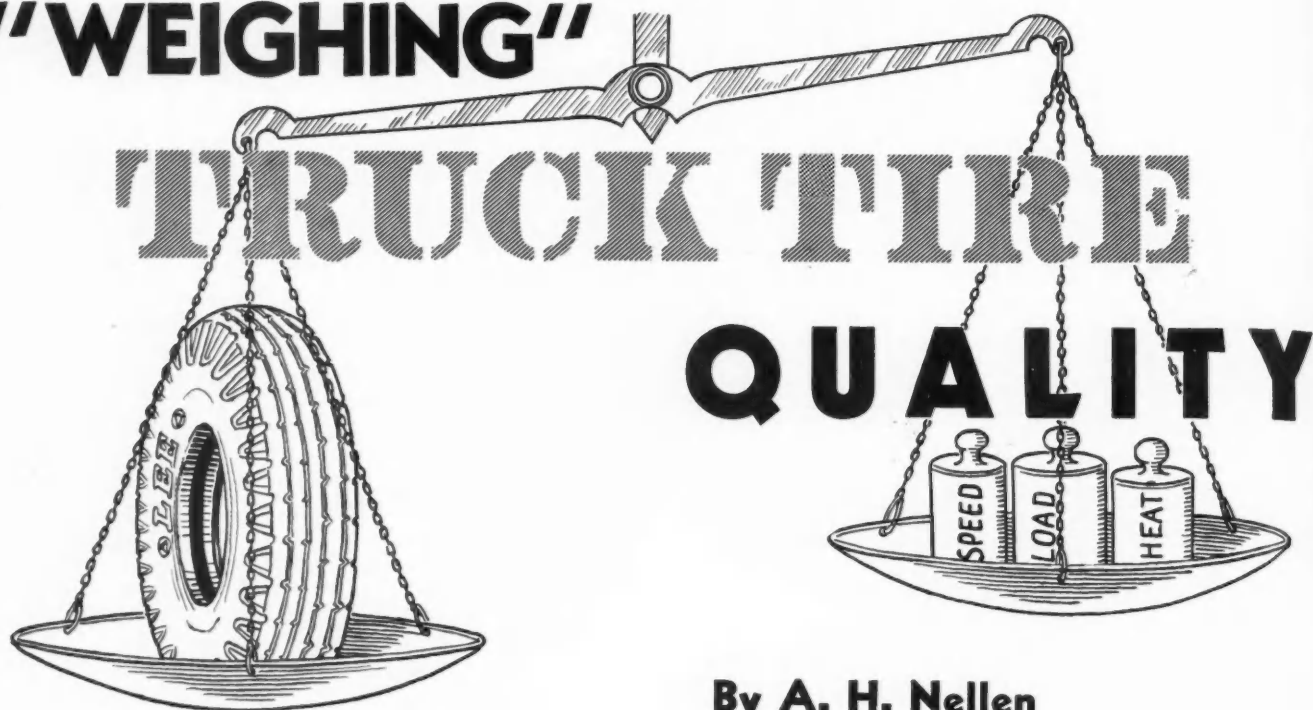
This is a confidence that is shared by fleet operators throughout the country, and it is

based on practical experience. Exides are built for hard, continuous service, for extra power, long life, and low maintenance costs. There is a line of Exides that take care of 90% of all commercial vehicles, in addition to the Exide heavy-duty line for large trucks. Your Exide Wholesaler can give you full details.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto



"WEIGHING"



By A. H. Nellen

Director, Development Department,
Lee Tire & Rubber Company

It has become rather common practice in tire advertising for tire companies to show reports from "independent testing laboratories" in support of statements that their tires may have certain superiorities over competitive makes. While it is not intended to belittle the accuracy and sincerity of these testing companies, nevertheless it is a fact that all of the major tire companies are equipped far better to make comparative tests of all kinds on tires than any independent laboratory.

In presenting the accompanying series of endurance test wheel tests on 9.00-20 tires the data used is furnished by the Lee Tire & Rubber Company's own laboratories which have equipment and knowledge which permit them to conduct a test of this kind in a manner that cannot be duplicated in any "independent testing laboratory" excepting the United States Bureau of Standards.

The truthfulness and accuracy of the test require no endorsement in addition to the fact that it is signed by the head of Lee's Development Department.

last 14 years of Lee tire development work, we have used test wheel tests constantly and have found that whenever it has been possible to raise the test wheel endurance of tire constructions, positive improvements in road mileage have been secured and decrease in tire service failures has resulted.

Also, we have found that by proper control of testing room temperature, speed, and inflation, a high degree of accuracy can be maintained in the test results; the normal deviation from average being not over plus or minus 5%. Our method of conducting this wheel test on 9.00-20 truck tires is as follows: tires are inflated to 65-lb. inflation on standard rims and are mounted on moveable brackets which allow them to be forced against a rotating steel wheel at any desired load and speed. The test wheel itself has a circumference of 1/300th of a mile, or 17.6 ft., which is the same as is used at the U. S. Bureau of Standards. The room is kept at a temperature between 90° and

96° F. at all times. At the start of the test, the brackets are weighted so as to place a load of 2727 lb. on each tire, which is then run as follows:

100 miles @ 30 M.P.H., then...

200 miles @ 35 M.P.H., then...

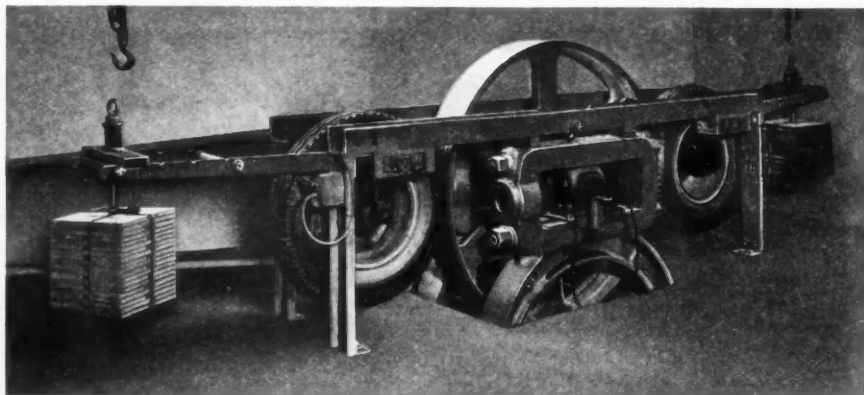
300 miles @ 40 M.P.H., then...

500 miles @ 45 M.P.H., in all, 1100 miles.

From this point on, an additional load of 174 lb. is placed on the tire every 500 miles, with speed maintained at 45 M.P.H. until failure occurs. This failure in all cases is either a blowout across the crown of the tire or a separation between tread and breaker. When a tire fails, the test wheel stops automatically and the mileage and load are recorded. The air is maintained at 65 lb. at all times, the wheel being stopped at intervals to bleed the excess pressure which is built up.

The initial tire load of 2727 lb. is below the recommended top load of 3250 lb. for a 9.00-20, because a tire deflects more on the curved surface of the

THE endurance qualities of pneumatic truck tires may best be determined by properly conducted indoor test wheel tests. This type of test gives positive measurement of the resistance of tires to breakdown due to flexing and heat caused by load and speed. Service failures in pneumatic truck tires result mainly from overloads or high speeds or a combination of both, and for this reason the high speed wheel test will determine the relative endurance qualities of various tires or tire compounds or constructions with a considerable degree of accuracy. In the



Bureau of Standards type test wheel used in these tests

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COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

test wheel than it does on a flat road surface, and if all the tires were started at 3250 lb. load, the mileage in some cases would be too low to give accurate comparisons. Also, if conditions at the start of a wheel test are too severe, the accuracy of the results will suffer.

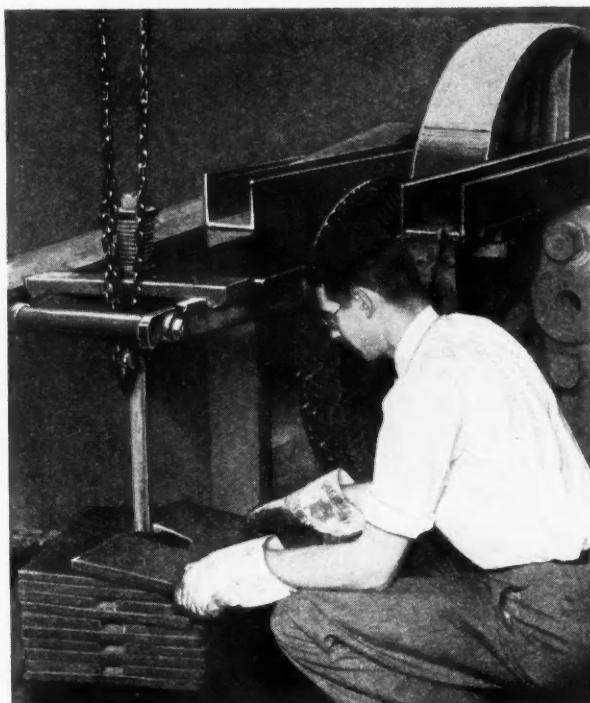
As a simple means of tabulating the endurance quality or value of a tire, we calculate an "endurance index" as follows: after the tire has run the breaking in period shown above, which includes 500 miles at 45 M.P.H. with 2727 lb. load, it rates an endurance index of 1, when it completes another 500 miles with the first additional weight (174 lb.), it is given an endurance index of 2, etc. So if a tire has an endurance index of 5, it would mean it failed after running the 500 mile period with 4 additional weights, or 3423-lb. load. Therefore, by this method, we accurately "weigh" the endurance quality or value of a tire and its ability to withstand the abuse of load and speed.

For the past several years we have been receiving very favorable reports from our customers regarding the service rendered by our truck tires, and on fleets where accurate records are kept, the mileage obtained from Lee tires has uniformly been better than that obtained from any other make. Even where the more expensive rayon carcass tires have been compared, users have reported considerably higher mileage averages on Lees. While we are gratified to receive such favorable reports, nevertheless we are by no means satisfied to let "well enough" alone. Francis Bacon once wrote, "That which man altereth not for the better, Time, the Great Innovator, altereth for the worse." We must keep ahead of our competitors by constant improvement, or they may catch and pass us.

Therefore, as a regular routine for investigating competitive tires and learning how Lee truck tires will perform in comparison with them in the 9.00-20 size, we purchased tires, all first line heavy duty, of the fourteen best known makes and brands in this country and tested them for endurance quality.

In table I are shown the results of the tests of all fourteen competitive tires compared with the same test on a Lee. The competitive tests are given in code, which is used, not because we are afraid

Before starting test, weight plates equalling the amount of the load to be carried by the tire are suspended on the cradle. Additional load is put on tire by adding plates as shown in this picture.



to have the accuracy of this test challenged, but because we wish only to show the superiority of Lee tires over all others and the extent of that superiority, but without disclosing the relative endurance quality of any other make or brand subjected to this test. It may be seen at a glance that Lee leads the field by a wide margin and is actually 73% better than the average of all competitive makes for resistance to breakdown due to load and speed.

In table II we show the endurance index from table I and by multiplying the endurance index by 100 and dividing this figure by the actual weight of the tire we get what we call the "efficiency index." This simply means the load carrying capacity of the tire per pound of its weight. This table (II) also shows that there is no relation whatever between the weight of a tire and its endurance quality. The ideal tire will carry the maximum of pay load with the minimum of tire weight. In modern engineering, the aim

is always to carry more load on less weight, and the same should be true in tires, as a decrease in tire weight on a truck means less unsprung weight with better riding, better gas mileage and less wear and tear on the truck mechanism. The Lee tire is 88% more efficient than the average, while the heaviest tire is 39% less efficient than the average. Obviously the Lee tire is nearer this ideal than any other tire.

There are good reasons why Lee truck tires outperform all others:

First: They are built with Lee Double-Life cord, which has been thoroughly described in a previous publication ("Facts about Lee of Conshohocken Tires Made with Lee Double-Life Cord").

Second: The compounding of Lee treads, cushions and carcass stocks is such that a minimum of heat is developed in the tire. Lee's advanced practices in rubber selection, raw material specifications and methods of mixing and processing these materials produce compounds which develop much less destructive heat under load and speed than similar compounds produced by methods used in other tire plants.

Third: Refrigerated water used throughout all mixing and processing operations permits the use of chemicals which cannot be used where cooling is less efficient, and permits the rubber to be processed without removing the valuable natural "nerve."

Fourth: Low temperature internal hot water cures used on all Lee tires insure slow, even penetration of heat thru the carcass and tread, giving proper vulcanization to all parts of the tire without localized spots of "overcure" and "undercure."

Fifth: "Lubricated" plies, or additional

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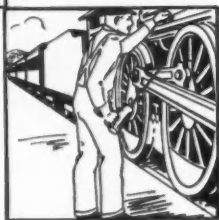
Ordinary Cord

Double-Life Cord



FRICION PRODUCES HEAT

LUBRICATION PREVENTS HEATING



layers of rubber compounds between *each* ply give added protection against heating caused by contact between cord plies.

Sixth: Accuracy in tire building. Lee methods provide for guiding each component part of the tire to its proper position with relation to other parts, thus insuring a smooth, well balanced construction which will distribute stresses and strains equally inside the tire carcass and prevent localized areas of excess heating and flexing.

In publishing a test of this kind in which fifteen makes or brands of tires are used (including Lee) we naturally must be very careful that not only our test method is sufficiently reliable so as to give results which are accurate, but also that each competitor's tire be tested exactly the same as the Lee. National laws regulating this type of advertising make it mandatory that complete accuracy of all statements be carefully maintained.

In conclusion, it may be said that after a carefully conducted test we have found the Lee 9.00-20 truck tire superior to all of the 14 first line heavy duty tires tested for resistance to failure due to overload and speed. Furthermore, based on the load carried per pound of tire weight, the Lee tire is by far the most efficient.

TABLE I

Wheel Test

9.00-20 Heavy Duty Truck Tires

100 miles @ 30 M.P.H., 2727 lb. load, then
200 miles @ 35 M.P.H., 2727 lb. load, then
300 miles @ 40 M.P.H., 2727 lb. load, then
500 miles @ 45 M.P.H., 2727 lb. load, then
speed continued @ 45 M.P.H., adding 174 lb. load every 500 miles to failure. Air pressure maintained @ 65 lb. per sq. in.

Comparative Rating	Make	Test Wheel Mileage to Failure	Load Carried When Tire Failed	% Overload	Endurance Index	% of Avg. Endurance Index*
1	Lee	5146	4293	32.0	9.1	173.
2	Competitor # 5	4485	3945	21.4	7.8	148.
3	Competitor # 4	4160	3945	21.4	7.1	135.
4	Competitor # 7	4069	3771	16.0	6.8	129.
5	Competitor # 9	3947	3771	16.0	6.7	127.
6	Competitor # 12	3731	3771	16.0	6.2	118.
7	Competitor # 1	3563	3597	10.7	5.9	112.
8	Competitor # 11	3387	3597	10.7	5.5	104.
9	Competitor # 8	3139	3597	10.7	5.1	97.
10	Competitor # 10	2883	3423	5.3	4.5	85.
11	Competitor # 6	2835	3423	5.3	4.5	85.
12	Competitor # 13	2558	3249	0	3.9	74.
13	Competitor # 14	2340	3249	0	3.5	66.
14	Competitor # 2	2219	3249	0	3.2	61.
15	Competitor # 3	2112	3249	0	3.0	57.

*Avg. endurance index of all makes other than Lee 5.26

TABLE II

9.00-20 Heavy Duty Truck Tires

Efficiency Comparison of Wheel Test Shown Table I

Comparative Rating	Make	Endurance Index	Efficiency Index	Efficiency Index Relation to Avg.*
1	Lee	9.1	93.5	188.
2	Competitor # 5	7.8	71.9	145.
3	Competitor # 4	7.1	66.8	135.
4	Competitor # 7	6.8	60.8	123.
5	Competitor # 9	6.7	59.4	120.
6	Competitor # 12	6.2	58.1	117.
7	Competitor # 11	5.5	57.5	116.
8	Competitor # 1	5.9	56.9	115.
9	Competitor # 8	5.1	51.8	104.
10	Competitor # 6	4.5	45.7	92.
11	Competitor # 10	4.5	41.9	84.
12	Competitor # 13	3.9	34.9	70.
13	Competitor # 2	3.2	30.8	62.
14	Competitor # 14	3.5	30.2	61.
15	Competitor # 3	3.0	27.7	56.

* Avg. of Competitors' Efficiency Index = 49.6

$$\text{Efficiency Index} = \frac{\text{Endurance Index} \times 100}{\text{Tire Wt.}}$$

Copies of this article and/or "Facts about Lee of Conshohocken Tires Made with Lee Double-Life Cord" will be gladly sent on request. Lee Tire & Rubber Company, General Office, Conshohocken, Penna.

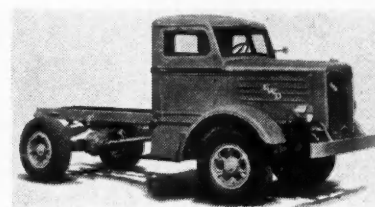


FWD Announces Models CU and CUA

WITH the announcement of the new models CU and CUA, of 3 to 4-ton rated capacity and 20,000 lb. gross vehicle weight, a complete improved line of FWD four-wheel drive trucks is now available in sizes ranging from 13,000 lb. gross to 15-tons capacity. The Four Wheel Drive Auto Co., Clintonville, Wis., is the maker.

Developing 96 hp. and a torque of 280 lb. ft., models CU and CUA are designed for mounting a wide variety

of auxiliary equipment and bodies. Mechanical features include 5-speed transmission; a midship sliding jaw clutch type on the CU and a sliding gear unit type on the CUA; 14 in. single plate clutch; gear ratios of 7.31:1 standard, and 6.72:1, and 8.84:1 optional; single reduction, bevel gear type, full floating axles, with split type housing, both front and rear; 9.75 x 20 tires, singles front and rear, duals optional at extra cost; 71 in. tread; 150 in.

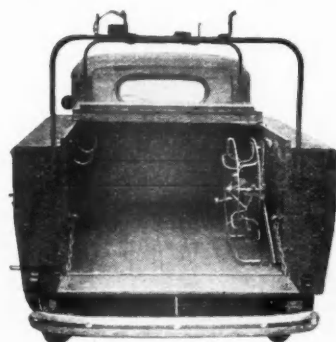


wheelbase, standard.

To permit ready installation of various control valves for the operation of the plows, underbody scrapers, and various other hydraulically controlled equipment, the instrument panel has been offset to the left of the cab. The cab is mounted on three-point rubber suspension.

Baker-Raulang Body

A new type body for telephone service is now being introduced by the Baker-Raulang Co., Cleveland, Ohio. The body is of all-steel construction and consists basically of a roomy bulk loading area, with



large side boxes mounted over the wheels. A special feature is the telescoping steel roof with hinged tail-piece which completely closes when desired. This protects all contents from the weather. A locking device also assures perfect safety of contents. Overhead racks are arranged for

carrying ladders, pruning tools and other similar items.

Because of its efficiency and unusually low cost this model, 163, is proving extremely popular in telephone installation and maintenance work. P. R. Reel is mountable in a vertical position inside the body and may be used without opening the top. Adaptable to any standard half-ton commercial chassis. Weight complete, 560 lbs.

Jahn Six-Wheel Trailer

Announcement of a new six-wheel "All Purpose" trailer has just been made by the C. R. Jahn Co. of Chicago. This new trailer, which has been designed to transport numerous types of machinery, will efficiently handle loads up to 48,000 lb.

Easier and faster loading is made possible by means of unique construction at the front end of the trailer frame, which serves as both a connection and turntable for the front axle, and permits the entire front axle assembly to be removed. A heavy jack screw built into the coupling assembly, raises or lowers the trailer frame to accommodate all jobs with perfect safety.

Two rear axle arrangements are available, either tandem or dual oscillating types, and all wheels are equipped with heavy duty balloon pneumatic tires.

Hansen Versatile Lock

A factor that is too often overlooked in the design of locks is flexibility. Not so in the case of the Hansen Heavy-Duty Lock, No. 111, made by the A. L. Hansen Mfg. Co., Chicago, which features extreme flexibility. It can be used with either right or left-hand doors and can be equipped with any one of three handles.

Made for heavy-duty service it has exceptionally large bolts which snap open



or closed when handle is operated. This unusual action is caused by an ingenious center mechanism which holds bolts rigidly in place whether open or closed.

New Truck Registrations by Makes by Months*

		Auto-car	Brook-way	Chevrolet	Diamond T	Dodge	Federal	Ford	G.M.C.	Hudson	Inter-nat'l	Mack	Ply-mouth	Reo	Sterling	Stewart	Stude-baker	White Indiana	Willys	Misc.	Total
January.....	1938	129	64	10,137	335	3,070	118	9,114	1,746	99	4,501	254	668	216	16	27	158	288	176	227	31,343
January.....	1937	130	102	13,975	828	3,673	199	16,230	2,749	278	6,098	382	208	344	22	89	167	583	125	300	46,482
February.....	1938	95	57	8,991	338	2,622	109	7,687	1,401	81	3,763	217	562	182	9	19	144	316	138	238	26,969
February.....	1937	112	115	7,777	580	4,904	205	16,100	2,987	355	5,136	363	692	305	25	101	215	538	57	292	40,859
March.....	1938	110	86	12,233	380	3,666	136	9,898	1,965	77	5,256	352	769	283	17	31	161	394	174	303	36,291
March.....	1937	179	140	16,924	815	6,337	236	20,386	4,122	539	5,639	476	1,104	484	23	147	465	647	76	299	59,088
April.....	1938	119	127	11,719	393	3,575	136	9,287	1,917	78	4,810	366	757	251	26	43	184	368	175	341	34,672
April.....	1937	228	184	21,974	863	3,935	258	22,241	4,671	482	6,710	586	1,143	378	43	118	706	809	107	346	65,782
May.....	1938	193	159	10,659	360	3,171	93	8,918	1,810	68	4,281	392	662	287	25	45	221	364	168	340	32,206
May.....	1937	197	183	20,146	816	5,893	294	19,884	4,416	499	7,071	579	1,447	411	27	120	701	783	77	440	59,974
June.....	1938	235	116	9,912	332	3,055	95	8,427	1,730	65	4,045	317	681	213	21	38	158	308	196	288	30,232
June.....	1937	197	139	16,703	644	6,048	223	17,414	4,035	554	6,681	536	1,634	435	33	92	643	668	82	374	57,135
Six Months.....	1938	801	609	63,651	2,138	19,159	687	53,329	10,571	468	26,656	1,888	4,099	1,432	114	203	1,026	2,038	1,027	1,737	191,713
Six Months.....	1937	1,043	863	97,499	4,546	30,790	1,415	112,255	22,980	2,697	37,385	2,922	6,228	2,357	173	667	2,897	4,028	524	2,051	333,320
% Change... 6 Mos.		-15	-29	-35	-53	-38	-51	-52	-54	-83	-29	-35	-34	-39	-34	-70	-65	-49	+96	-15	-42

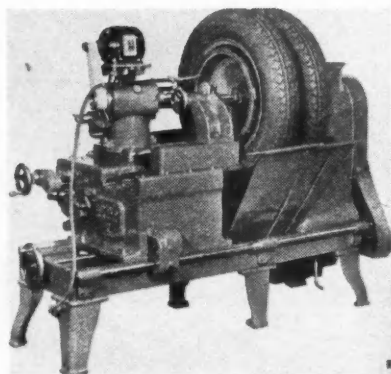
* Does not include returns from Wisconsin. All data are comparable.

NEW PRODUCTS ON PARADE



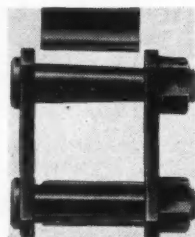
Lempco Turning Machine

Lempco Products Inc., Bedford, Ohio, announces the development of a new grinding and turning machine designed for internal and external grinding and turning. It is particularly adaptable for brake



drum truing, flywheel refacing and turning, clutch pressure plate regrinding and other operations of a similar nature. It is to be known as the Du-All Grinding and Turning Machine. Literature regarding this machine and also the Model C brake truing machine is available from the factory.

Permite Adjustable Shackle

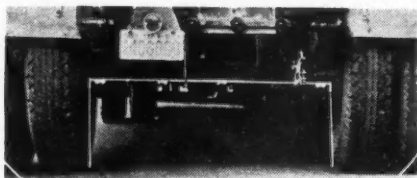


Aluminum Industries, Inc., Cincinnati, O.

The tapered shape of the shackle pin bolts, in conjunction with the tapered shackle bolt pin bushings, permits such complete adjustment in application, that this Permite Shackle fits worn spring eyes, as well as new ones. Difficulties of removal or adjustment are avoided, because the tapered bushings fit the spring eye or hanger without binding.

Trailer Safety Signal

The Michigan Automotive Development Co., 4715 Somerset Ave., Detroit., announces a new trailer accessory—the Testori Trailer Safety Signal. The device consists of two strong nickel-plated rust proof

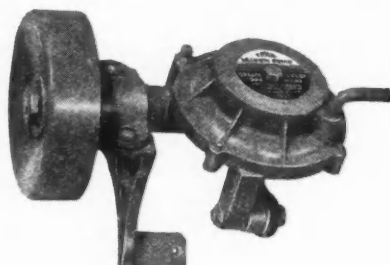


rods running between the wheels of the trailer axle and firmly attached to the axle by plates and U-bolts, ground contact rods held in place by flexible steel compression springs, a switch and a buzzer.

The contact rods are set $\frac{1}{2}$ to 1 in. from the ground. The instant a tire lowers $\frac{1}{2}$ in., the rod contacts the pavement, turning on its swivel joint and making a contact with a specially enclosed switch connected with a buzzer in the cab. The flexible swivel joint allows the driver to back up or travel over rough detours or rutty country roads without damage to the signal.

Trico Vacuum Pump

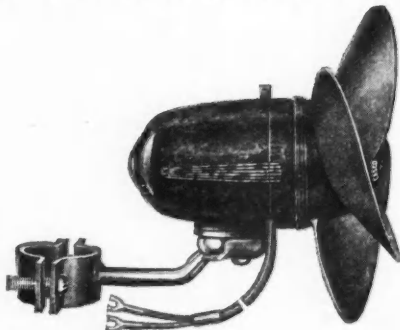
The Trico Products Corp. has a new vacuum pump. It is belt driven from the outside of the belt. It is easy to install and fits practically all late model engines. The pump is supplemented by manifold



vacuum through a combination Tee fitting and check valve. It provides continuous wiper action regardless of long hills or severe acceleration.

Casco Rubber Fan

A new streamlined rubber-bladed auto fan has just been released by the Casco Products Corp., Bridgeport, Conn. It has



three blades, a bakelite case, two-speed built-in switch and a universal mounting bracket.

Purolators for Diesel Fuels

Motor Improvements, Inc., has developed the following Purolator installation for diesel fuel dispensing units.

A primary and a secondary Purolator are connected in series on the pressure side of the fuel delivery pump, which draws from the underground fuel storage tank. The primary filter is the G-17JJ-45 Purolator. This model contains two Purolator metal-edge type elements, equipped with knife cleaning blades, and having .003 spacing between the interstices of the filter surface. These two elements operate in parallel. The secondary filter or DN-99 Purolator is placed on the outlet side of the G-17JJ-45 to accomplish positive removal of any extremely small particles which may remain in the fuel after passing through the first stage of filtration.

(TURN TO PAGE 75, PLEASE)

LITERATURE FREE

Note: The following items may be obtained by writing direct to the manufacturer.

Welding Aluminum

The Aluminum Co. of America has just issued a revised edition of its manual, Welding Aluminum. It is a 48-page booklet, well illustrated and of an extremely practical nature.

Lempco Drum Truing Catalog

The Lempco Products Inc., Bedford, Ohio, has issued a catalog showing full details on the new model C brake drum truing machine. The piece also contains some information on various brake drum service conditions. The title of the booklet is Quality Brake Drum Truing Equipment.

Hobart Arc Welder Data

Hobart Bros., Troy, Ohio, has published a catalog entitled the Advanced Hobart Multi-Range Arc Welder which gives full detailed information on the line of Hobart Arc Welders.

Thor Screw Driver-Wrench Manual

Complete specifications on bits for driving slotted head and Phillips recess-head screws and on socket wrench shanks and socket wrenches for all types of bolts and nuts, are presented in a new catalog and reference manual just issued by the Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago.

New Hansen Folders

The A. L. Hansen Mfg. Co., 5047 Ravenswood Ave., Chicago, announces three new folders. Folder No. 87 shows the new Hansen Heavy-Duty Lock and a choice of three handles. Folder No. 88 shows Hansen Lock with Locking Device, this being a new Hansen feature. Folder No. 89 is a general folder of cab locks, regulators, etc., and shows several new products.



...Yet one oil proved best for both!

YOU MAY THINK your trucks and busses are a big lubrication problem. But this Southern funeral-home operator had a double barreled headache.

First, his ambulances . . . traveling always at top speed. That meant high oil temperatures . . . and an even higher oil loss. Second, his hearses and funeral cars . . . forced to creep along for hours on end with resultant low oil pressure . . . and high repair bills.

The problem: Could any oil lick both conditions?

FOUND: The Answer!

Although a firm believer in premium-price oils, this fleet operator tried one after another without success. Finally he ran a series of tests . . . with premium oils only . . . and found the answer in *Gulfpride*! It cut his oil costs in *both* ambulances and hearses! And the drop in his repair bills had his hat in the air!

Remarkable? Yes—but *Gulfpride* is a remarkable oil! Hundreds of fleet operators are discovering that

the way to lower oil and repair bills is to change to *Gulfpride*.

For the Alcholor process used in refining *Gulfpride* (in addition to conventional methods) is Gulf's own, exclusive and patented! This *extra* process removes as much as 20% more waste and sludge from the 100% Pure Pennsylvania.

Why pay more for oil and repairs every year than you have to? You'll get better lubrication and save money, too, if you fill your fleet with *Gulfpride*. Do it today! Gulf Oil Corporation, Gulf Refining Company, Pittsburgh, Pennsylvania.

Gulfpride **GULF**

The world's finest motor oil

100% PURE PENNSYLVANIA...IN SEALED CANS ONLY

NEWS

SUMMARY

Truck Production Steady

Truck production in the United States and Canada during June held its own for the first time in several months with a total of 41,854 units compared with 41,584 in May. The June figure, however, shows a drop of 54.3 per cent from the June, 1937, total of 91,820 units. The first six months' total of 293,413 was 45 per cent under the 533,059 units produced in the same period a year ago.

ICC Sets 10 Hour Day

The much discussed ICC hours of service regulations affecting drivers of common and contract carriers goes into effect on Oct. 1. Not more than 10 hours' driving time in any 24 followed by an eight-hour off-duty or rest period is the principal stipulation of the regulation. The weekly hours of service limit has been set at 60 hours.

ATA Convention Oct. 31-Nov. 2

The fifth annual convention of the American Trucking Associations, Inc., will be held at the Hotel Statler, Detroit on Oct. 31 to Nov. 2. It is contemplated that Nov. 3 will be set aside as "factory day" to afford delegates an opportunity to visit truck factories in the Detroit area.

Penna. Toll Road Assured

A four-lane super-highway of the type which some Congressional enthusiasts would like to see running from Maine to California is assured in Pennsylvania under a \$26,000,000 outright grant approved by the PWA and a \$32,000,000 loan from the RFC. The new road will connect Harrisburg and Pittsburgh 162 miles apart, and will be the first sizable toll road to be constructed in the country.

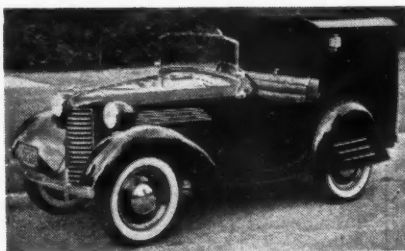
The road will follow a course laid out in 1881 by the South Pennsylvania R.R. and will include nine tunnels, some of which are a mile in length.

Mack Gets Order for 69 Diesels

An order for 19 additional diesel-powered trucks has been placed with Mack Trucks, Inc., by Generoso Pope, president of Colonial Sand and Stone Co., New York, who only the week before had signed a \$500,000 order for 50 similar vehicles.



Mr. Pope signs the diesel order while F. F. Stanniford, Mack vice-president, looks on



The Boulevard Delivery is one of three new models recently introduced by the American Bantam Car Co., Butler, Pa. A 4-pass. speedster and station wagon are other additions

C of C Calls Transportation Meet

Pointing to the urgent need for transportation legislation in the next session of Congress, George H. Davis, president of the Chamber of Commerce of the United States, has announced a Transportation Conference to be held by the chamber in Washington, Sept. 14 and 15. Among the subjects which have been suggested for consideration by the conference are railroad revenues, economies in railroad operations, competition among transportation agencies, and the question of the organization of government agencies dealing with transportation.

Reo Shifts Personnel

Sweeping changes in personnel of the Reo Motor Car Co. were announced recently by Rowland Campbell, executive vice-president and chairman of the board. Resignations of Col. Fred Glover as president and general manager, and of Earle W. Goodnow and M. D. Harrison, directors, were accepted.

Until further notice, Mr. Campbell will take over the duties of acting president.

ICC Sets Minimum Rates in Two Areas

Declaring that rate cutting among common carriers in the New England and Central states had reduced earnings to the point where an emergency had arisen, division 5 of the Interstate Commerce Commission issued an order establishing minimum rates in these areas. The rates are based on tariff proposals set forth by the New England Motor Rate Conference, Inc., and the Central States Motor Freight Bureau, Inc.

Chevrolet Territory Plan

Effective Aug. 15, Chevrolet installed a territory security plan of retail selling in selected key cities. The basic principle of the plan provides that for each new car or truck sold within a given dealer's area that dealer shall be paid \$25 if the payment is voluntary or \$35 if paid on demand. The only exception is that the rule does not apply to government orders or on sales to fleet owners using 25 trucks or more.

Specification Omission

Certain models of the Federal Motor Truck Co. were inadvertently omitted from the specification tables printed in the August issue. These include models 15H, 18H, 20H and 25H which are all current and which will be reinstated in the October issue.

Nebraska Sunday Law Still Holds

A permanent injunction against the Nebraska truck law which bans Sunday operation of transport has been denied by District Judge Polk of Lancaster Co. Attorneys for the test case will file motion for a new trial but are undecided whether to take the case to the state supreme court or to seek repeal at the next session of the legislature.

Chevrolet Steps Up July Sales

Chevrolet's new car and truck sales reached 51,047 units in July, exceeding the June total by 5423 units or 111.9 per cent of June sales, and setting an unusual sales record by reversing the normal market trend.

APPOINTMENTS

The Heil Co., Milwaukee, announces that Jack Davies, Southeastern district manager who for several years has been located at Baltimore, Md., will move his headquarters from Baltimore, Md., to Atlanta Ga.

The United American Bosch Corp., Springfield, Mass., announces that H. O. Hill, a member of its staff of Diesel Injection Equipment Engineers has been transferred from the Chicago territory to Detroit.

L. Clifford Goad, recently named as general manager of the AC Spark Plug Division of General Motors, to succeed Fred S. Kimmerling



The Weaver Mfg. Co., Springfield, Mass., has announced the appointments of M. D. Rice and C. H. Phelps to its sales promotion and engineering departments respectively. Mr. Rice comes from Socony-Vacuum, Mr. Phelps from the Lantz Phelps Corp.

Daniel I. Glossbrenner, secretary-treasurer of the Marmon-Herrington Co., Indianapolis, Ind., was elected president of the National Association Rainbow Division Veterans at St. Paul Minn., last month.



Fred L. Beelby (left) and Michael M. Scovill, recently appointed to the Studebaker Pittsburgh branch. Mr. Beelby, who comes from Detroit, succeeds M. E. Hewins as regional manager and is assisted by Scovill

On Its Record THE GREATEST IMPROVEMENT IN TRUCK TIRES *in 20 Years*

No matter what other
truck tires have done for you...
GOODYEAR YKL
*will do it
better!*

RECORDS of 60% — 80% — even 100% and more — longer tire life coming in from truckers everywhere are proof positive that the new Goodyear YKL is the biggest truck tire advance since Goodyear pioneered the first pneumatics.

What makes this sensational performance possible is the use of RAYOTWIST cord in every ply — a basic new material spun from rayon that far excels ordinary cord in resistance to heat.

Because Rayotwist effectively resists heat—the cause of 82% of all truck tire failures—this new Goodyear YKL will outperform any truck tire you have ever used in these NINE important ways:

1. LONGER TREAD WEAR
2. LONGER BODY LIFE
3. GREATER BRUISE RESISTANCE
4. GREATER SAFETY FACTOR FOR OVERLOADS
5. GREATER SAFETY FACTOR FOR UNDER-INFLATION
6. HANDLES SPEED HEAT
7. GREATER RESISTANCE TO BRAKE DRUM HEAT
8. TAKES MORE RETREADS AND RECAPS
9. GREATER ACCIDENT IMMUNITY

Your Goodyear dealer can show you complete factual evidence of all this. Investigate YKL before you buy another tire — if you want to reduce your tire cost-per-mile to the lowest you have ever known.

TYPICAL RECORDS

"I averaged 30,000 miles with several brands of conventional tires. Goodyear YKL's averaged 70,000 miles." — Joe Long Distributing Company, Wichita Falls, Texas.

"My maximum mileage on other tires was approximately 17,500 miles. To date I have 65,777 miles on YKL's and they are good for 10,000 to 12,000 more." — Clyde Tinker, Johnson City, Tenn.

THE GREATEST NAME IN RUBBER
GOODYEAR

YKL
*-built with heat-proof
RAYOTWIST*
FOR TRUCKS AND TRAILERS

ICC Prohibits Case-Hardened Glass

The use of case-hardened glass in lieu of safety glass in any windshield or window of any motor vehicle operated by a common or contract carrier subject to the Interstate Commerce Commission is prohibited, under an amendment to the ICC safety regulations, effective Sept. 1.

Marketing Associates, Inc.

An organization, known as Marketing Associates, Inc., has been established with headquarters at 392 Broad St., Newark, N. J. The company will act as marketing and merchandising counselors and will also be equipped to handle national distri-

bution of products. It has already been named as distributor for "Alkosave" the new radiator seal manufactured by Evans Products Co., Detroit.

Officers include Ralph Voorhees, president; A. F. Grigg, vice-president and J. W. Howe secretary and treasurer.

July Ford Truck Sales Up 42%

Sales of Ford V-8 trucks in July showed an increase of 42.5 per cent over the June figure while commercial car sales were up 17 per cent. Ford V-8 truck sales in July totaled 6235 units, as compared with sales of 4353 units in June. July commercial car sales were 5273 units, against 4486 in June.

Louisiana Broadens Weight Law

Effective July 21, a new Louisiana law (Act No. 286, Acts of 1938) raises the maximum allowable load on a single automotive unit from 7000 to 8000 lb. and for semi-trailer units from 10,000 to 14,000 lb. 16,000 lb. are allowed on high-pressure or solid-tired axles, 18,000 on pneumatics.

DeVilbiss Painting School

The DeVilbiss Co., Toledo, Ohio, announces the schedule of its fall training school, open to fleetmen and others interested in spray-painting technique.

Classes which last for one week will start on Oct. 3 and 31 and Nov. 28.

Structural Aluminum Handbook

The 1938 edition of the "Structural Aluminum Handbook" published by the Aluminum Co. of America, Pittsburgh, Pa., is now available from the company's headquarters at a cost of \$1.25. Fundamental information regarding the structural strength of members fabricated from various aluminum alloys occupies an important part of the book.

Sterling Steelductor Cable

A new type of ignition cable has been announced by the Sterling Cable Corp., Port Huron, Mich. The cable, known as Sterling Steelductor, embodies new construction and new principles which the makers say constitute the greatest fundamental advance ever made in ignition cable. Improvements in performance overall operating and maintenance economy are claimed as the result of employing an electrical conductor of seven strands of stainless steel, instead of the conventional 19-strand copper conductor. Cable employing this stainless steel conductor has come into widespread use on aircraft engines.

Laboratory and service tests on all types of automotive equipment have demonstrated, the maker claims, that the cable makes possible these advantages:

1. Spark discharge with lower battery voltages—a characteristic particularly desirable for winter starting.
2. Increased top speeds and greater engine efficiency and power for hard pulls in low gear.
3. Lower idling speeds as the result of greater duration of the spark discharge. Idling speeds can be reduced without resorting to a wider spark gap.
4. Spark plug life is increased by damping out of unnecessary peak currents.
5. Burning and pitting of breaker points is also reduced by the damping effect of the steel conductor cable, which minimizes arcing at the breaker points.
6. Misfiring from fouled plugs is reduced because more electrical energy may be lost through this condition without causing misfiring.
7. Greater mechanical strength of conductor prevents corona between conductor and insulation.
8. Effect of heat on insulation is minimized by poor heat conducting qualities of stainless steel conductor, which are 20 times less than heat conductivity of copper.

TRUCK DELAYS ARE NOT ALWAYS THE DRIVER'S FAULT . . .



● Perhaps the office is responsible. And that discovery leads the way to truly enormous savings.

Here's a truck waiting for its load for 2 hours, at a cost of \$2 or \$3 an hour! Here's a truck with a short afternoon route, getting in at 3:30 and nothing more to do till closing time.

Many Causes for Lost Time. Here's a truck that's up against a hold-up at the freight station, which could be corrected; here's a truck bucking the rush hour traffic unnecessarily; here's a truck that needs a helper; here's a truck that's over-worked, causing expensive overtime!

POINTS
OUT ALL
DELAYS!



Time, time, time! It's all a problem in TIME—and of course the **Servis Recorder** gives you all this information, on its chart, at a glance. It gives you the clue, it points the way to a proper arrangement of your whole truck system, where the driver is only a small part of your problem. Write for free booklet: "Ten Ways of Getting More Work Out of Motor Trucks."

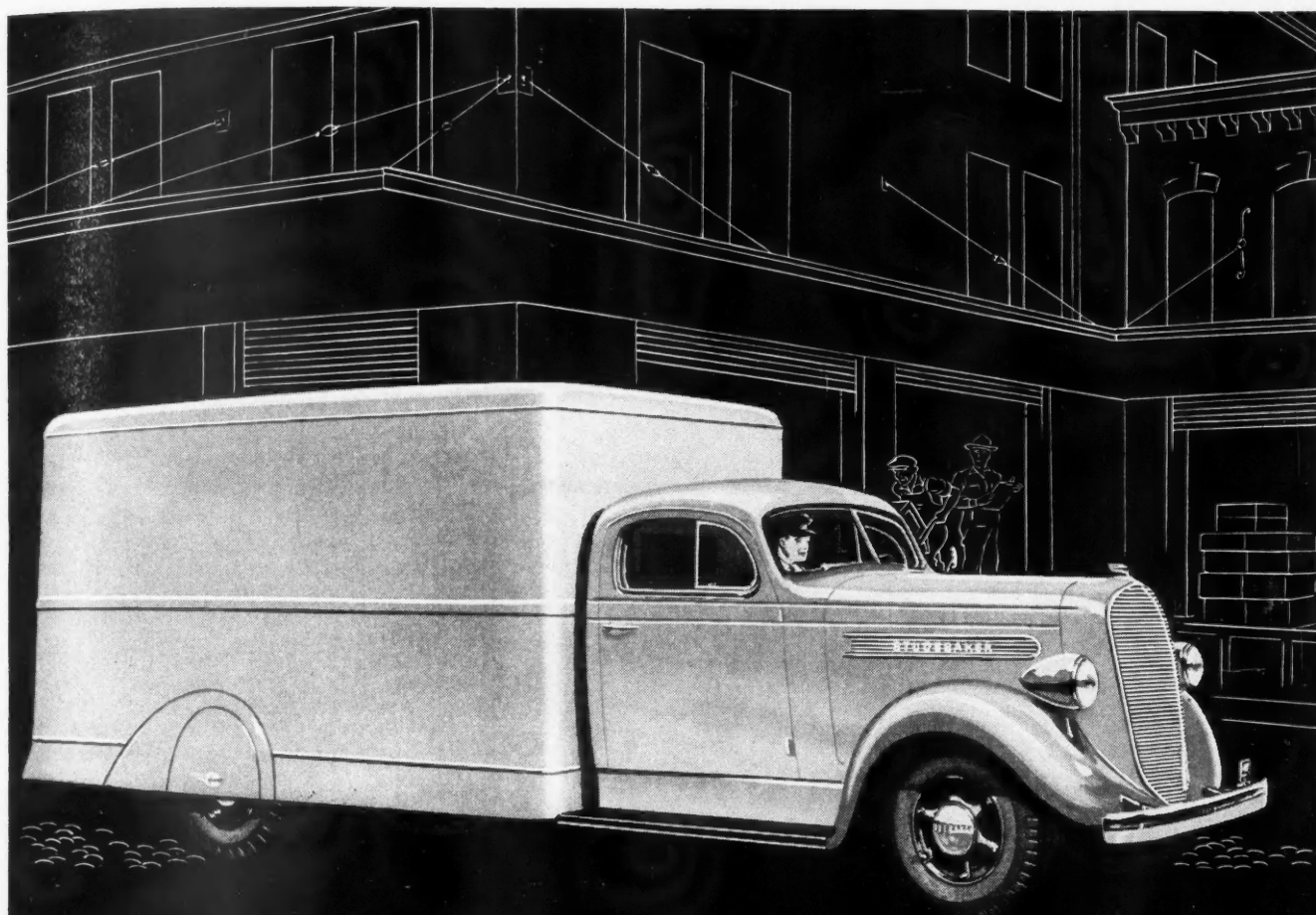
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Tells Every Move Your Truck Makes

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COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938



STUDEBAKER

Standard Series Trucks

*cost less and
last longer than
most trucks*

THE prices of all Studebaker Trucks are extremely low. Yet the most careful analysis of specifications, the widest questioning of owners and drivers, prove that Studebaker Trucks are extraordinarily economical to operate and last considerably longer than usual. The Standard Series (illustrated) is built in 4 sizes—12,000 to 20,000 pounds gross capacity. There are 4 corresponding low-priced Cab-Forward models as well as fast $\frac{1}{2}$ -ton and 1-ton Express types. Your Studebaker dealer stands ready to figure with you on any model—any deal—any time. Call him, or write—

THE STUDEBAKER CORPORATION TRUCK DIVISION SOUTH BEND, INDIANA
Foremost in Transport Since 1852

PAY

(CONTINUED FROM PAGE 31)

We use two different types of condensers, a high capacity condenser for slow driving of city trucks, and a low capacity condenser for higher speed trucks used on the country routes. Having the right capacity condenser keeps distributor and spark plug points in good shape.

We never install a spark plug with-

out first determining the conditions under which the truck is operated. When we know about the operations, we install the plug with the heat range necessary for best efficiency.

More attention is given to proper adjustment and suitable installations to receive greater efficiency and prevent break-down and excessive wear than is given to rebuilding motors. If the necessary precautions are taken, break-downs are almost unknown and rebuilding a motor is such a rare thing in our shop that we don't

average more than one motor rebuilding a year.

We check everything about a truck periodically, just rotating the fleet through the shop and going over trucks regardless of performance. We place importance upon seemingly small things. We know that the amount of voltage behind the generator output is important, and that the maximum voltage output should not be over 9 volts on 6-volt units or less than 6. Voltage above 9 volts will burn the spark plugs, breaker points, condensers and coil. Any loose wiring condition creates high voltage, just as too high voltage burns the light bulbs and the generator, too low voltage created by a bad generator condition means low batteries and poor gasoline and ignition efficiency.

Many a good battery has been condemned merely because of a loose connection and too high voltage that burns the light bulbs. We don't wait until such conditions arise and then try to correct them; we check first to prevent any possibility of poor operating efficiency.

For instance, we use light relays, coming off the starter switch to the headlight relay with a number 10 gauge wire and from the headlight relay to the headlights with number 14 gauge wire. The proper size wire is important, for a motor is much like a human body, and the battery is the heart.

A very high grade of carbon dissolving tune-up oil is used at regular intervals, or when each truck is pulled in for tune-up and complete inspection. Mileage is not always the basis for such tune-up; we just rotate them through the shop as we have the time and depending to some extent on weather and other operating conditions.

This motor tune-up oil keeps down deposits of carbon in the oil and results in all around better motor performance. This one thing prevents many overhauling and rebuilding jobs.

We use the very best grade of crankcase oil; and use as light an oil as possible, usually using S.A.E. 20 and 30 in all motors. We have trucks with more than 90,000 miles on the speedometer and yet using S.A.E. 20 oil.

Crankcase changes will average 6000 miles or slightly more. How-

Be Sure Your Trucks Are Safe!



WEAVER

COMBINATION
BRAKE and ALIGNMENT
TESTER

with new

BRAKE-O-GRAPH

instantly and automatically
makes a card record of
true condition of brakes
and wheel alignment

YOU can save time . . . avoid grief . . . and effect real economies by checking all vehicles in your fleet periodically on Weaver Brake and Alignment Tester.

This combination unit is automatic in action. The truck or car operates it when driven onto the floor plates. If brakes or alignment are faulty this Tester gives the driver visible proof of unequal brakes or misalignment.

The Brake-O-Graph Mechanism, which is optional equipment, affords the added advantage of making a per-

manent card record of brake action. It pictures the actual number of pounds of energy applied to each brake; also shows how quickly each brake takes effect—showing up delayed action. The amount of tire side drag in feet per mile is also recorded. Brake-O-Graph Record Card serves as a guide to mechanic handling any corrective service required in the shop.

Provide this protection for your fleet NOW. Descriptive literature and details will be supplied on request. Ask your Weaver jobber—or write us TODAY!

WEAVER MANUFACTURING COMPANY

Chatham, Ontario, Canada

SPRINGFIELD, ILL., U.S.A.

London, England

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COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

IT'S HOT NEWS WHEN A TRUCK TIRE RUNS COOL

New Goodrich Tire Licks Heat Problem—Practically Eliminates Sidewall Breaks

● You can now get greater truck tire mileage than ever before! Greater freedom from road delays and premature failures!

Thanks to Goodrich engineers you can buy a new kind of truck tire—a tire that does not get dangerously hot. With the heat problem licked you can forget most of your tire worries.

It's excessive heat that kills off tires while they're still young. Rubber wilts under the frying-pan heat generated by today's high speeds and heavy loads. Sustained high temperatures make tires "grow," cause blow-outs, sidewall breaks.

NEW TYPE CORD USED

Goodrich gives you a cooler-running tire with a body of the newly-developed Hi-Flex Cord. This cord retains its strength and elasticity. It doesn't stretch and become longer, permitting the tire to "grow." Smaller in diameter, more compact, Hi-Flex Cord can be surrounded with more cooling, insulating rubber. Because of the cord's amazing properties, it is possible to build a super-strong tire, yet a tire that does not depend on thickness alone for its strength. It's a compact tire that runs cooler—stays below the temperature danger point.

EXCLUSIVE WITH GOODRICH

Only Goodrich offers you Hi-Flex Cord, and only Goodrich offers you this money-saving combination:

- 1 **PLYFLEX**—a tough outer ply which distributes stresses throughout the tire and prevents local weakness.
- 2 **PLY-LOCK**—a new method of locking the plies about the beads, anchoring them in place.
- 3 **HI-FLEX CORD**—full-floated in live rubber—cord that retains its strength and protects the tire against getting dangerously hot.

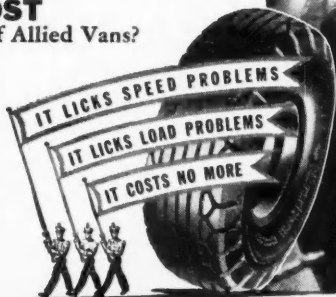
No wonder we can say that sidewall breaks are practically eliminated with Goodrich Silvertowns!

NO EXTRA COST

Why not follow the lead of Allied Vans?

Put these tires on your trucks and put an end to worries about peak loads and high speeds. You can handle any haul safer and cheaper. And remember—you will get premium tire mileage without paying a premium price.

Phone a Goodrich Dealer or Goodrich Silvertown Store for prices.



ALLIED VAN LINES is an organization of some 550 agent-members operating more than 900 fast modern vans in coast-to-coast service. Heavy loads and high speeds offer no tire problem to Allied drivers. Their Goodrich Silvertowns are protected against "tire-killing" heat.

Goodrich Triple Protected **Silvertowns**
SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

ever, mileage is not the determining factor because we often have oil at 8000 miles which is in satisfactory condition. We analyze our oil before draining and change only when necessary for best efficiency. We use a large type filter on all trucks. This filter pack consists of fullers' earth and metallic wool for extracting the carbon and foreign matters such as motor grindings.

For our fleet of 35 trucks, our average daily requisition for oil totals only 2 to 6 qt., yet most of our

equipment is considered old, practically all the trucks having more than 50,000 miles, and some well over 100,000 and still giving splendid service. We have one truck for example with over 80,000 miles that has the low operating cost of 2½ cents a mile.

Governors Increase Efficiency

Some people contend that governors on motor trucks and commercial cars increase the accident hazards. We have governors on our

trucks and have our records to prove our claim that governors not only increase general operating efficiency and lower costs, but they are an aid to accident prevention. Since we have used governors along with safety training, wrecks on the part of our drivers have been nil. During the past three years, we have cut our insurance cost \$20 a year per vehicle.

As insurance against mashed fenders and busted bodies, we have installed a steel guard that extends from the frame to come under the right rear fender and curve over it to the bumper. This guard is ¼-in. by 2¼-in. spring steel, and it prevents mashing the fender when backing into a curb to park. For the 1½-ton trucks that are in downtown traffic all the time, we have installed a guard rail around the bottom of the truck body, using ⅜-in. by 4-in. spring steel to form the band. This band is held in place by straps that connect to the frame. The precaution has prevented many dents and busted panels and fenders.

We have installed radiator braces to supplement those that come as regular equipment for some of the trucks. And we use a manual choke with a snap-back spring which prevents the driver from operating the truck a half day with the choke pulled out.

Our gasoline efficiency has been increased because of the governors, and because there is no waste. The first of each month, each truck has the tank filled so that we may check the mileage. But thereafter, the gasoline tanks are filled to three-quarters to prevent spilling when turning corners or on inclines. Any time a truck appears to use more gasoline than normally expected, we make a road test and determine exactly what mileage it gives.

Our gasoline mileage is 12¼ miles per gallon over-all for the fleet, consisting of half-ton, three-quarter ton, 1½-ton and six sedan delivery cars. Although some of these trucks are on country runs, most of them are in city service, making several hundred stops daily.

When we fill the trucks full of gasoline the first day of the month, we place three drops of oil in the generator, no more, no less. We find that if this is left to service station

(TURN TO PAGE 54, PLEASE)



GIVE ME 30 MINUTES AND I'LL GIVE A PERMANENT REPAIR TO COOLING SYSTEM CRACKS

That's no idle boast. Sure-Weld gives a permanent repair to cracks in valve ports, cast iron and aluminum cylinder heads, inside cracks and water jackets.

And most amazing of all, it does the whole job in 30 minutes' time.

Sure-Weld is new. But it's tried and firmly guaranteed. It will not clog radiators and has a cleansing effect on the entire cooling system.

Don't let your trucks be laid up when Sure-Weld can make a minor job out of cooling system repairs. Start saving now. If your jobber can't supply you . . . order direct.

SURE-WELD



LET ME REMOVE RUST AND RUST-PROOF ALL METAL WITH- OUT DRAINING THE COOLING SYSTEM

Kleerust not only removes cooling system rust, but rust-proofs all metal for an entire year. Think of it! Without draining the cooling system Kleerust goes to work. The truck is operated as always and within a month Kleerust has not only completed its job, but even the original water will have returned to its former crystal clearness. In winter it even adds a protective seal to antifreeze and does not curtail its efficiency in any way. You can save many a repair bill with Kleerust. Order from your jobber now, or write direct.

KLEERUST

IN CANADA
SURE-RITE PRODUCTS, Canada, Ltd.
20 HAYTER STREET, TORONTO

SURE-RITE PRODUCTS CORP., 6010 N. CAMAC ST., PHILA., PA.



I'LL PUT SAFETY INTO YOUR HEADLIGHT REFLECTORS FOR 25c A PAIR

Nothing is more vital to safety on long night drives than good headlight reflectors. You can't afford to neglect them at any cost.

But the cost of Sure-Plate resilvering equipment is so low that the average cost of resilvering reflectors won't run over 25c per pair of reflectors.

"B" Assortment
\$12.50 net to fleet
owners.
Slightly higher in
Canada.

Don't gamble with life and property. Order Sure-Plate from your jobber now. If he can't supply you, write direct.

SURE-PLATE

EXPORT DEP'T.

REX-HIDE EASTERN, INC.

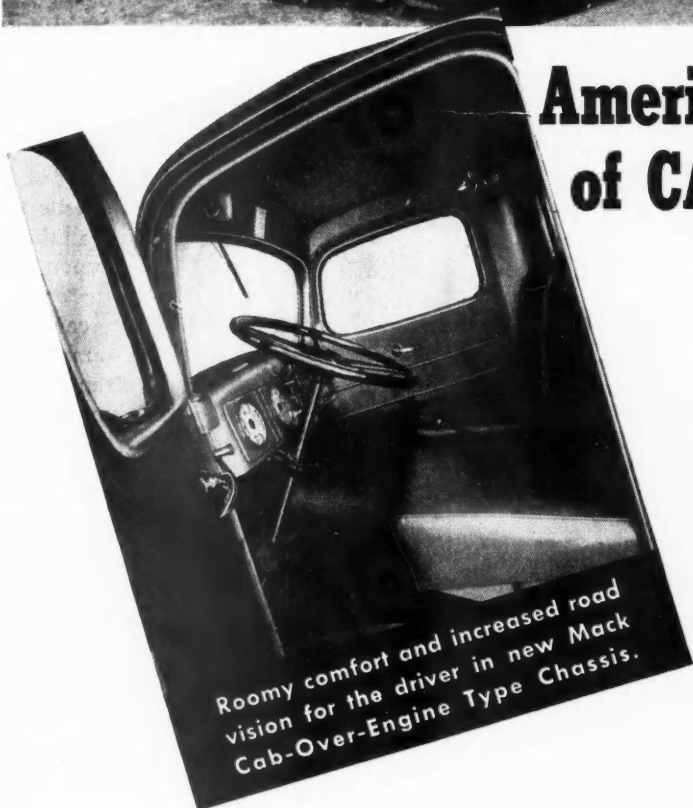
33 W. 60TH STREET, NEW YORK CITY



NOW—10 MACK CAB-OVER-ENGINE MODELS

Starting at 12,000 lbs. Gross*

America's Most Complete Line of CAB-OVER-ENGINE TRUCKS



Roomy comfort and increased road
vision for the driver in new Mack
Cab-Over-Engine Type Chassis.

● Now—every hauler, large or small—can get a Cab-over-Engine Model with the same rugged, money-saving stamina which has made heavy-duty Macks the criterion of real truck value.

These new Macks accommodate standard body lengths on wheelbases averaging 32 inches shorter. New advantages—in turning radii—in overall length—in maximum payloads within rigid State restrictions. Comfort and safety, too, reach a new high in these new Macks. And each one, with its sleek streamlining, is an impressive rolling advertisement for your business. Find out about these great new Macks at your nearest Mack Branch or your dealer's now!

*Includes chassis, body and pay-load

MACK TRUCKS, INC., NEW YORK, N. Y.

COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

When writing to advertisers please mention Commercial Car Journal

(CONTINUED FROM PAGE 52)
attendants, they will use too much oil and burn out the brushes.

Daily Tire Inspection

I, or one of the two helpers, stand by the door each morning and give all trucks a quick inspection, and check the tires. If a tire is not on the dot, we make it exact before the truck is permitted to leave. At one time we tried having a tire company keep the fleet's tires checked, but the plan did not work out. A tire man

may get careless and let a tire that is supposed to carry 35 pounds get 55 one day and next time it will carry 25 pounds.

Every valve stem has a cap screwed down tightly; and every tire is filled with clean air. We have our own compressor, which is frequently drained, and there is no dirty air or moisture that gets into the tubes to rot them out.

When we have a truck in for tune-up and inspection, we jack up each tire and pick out all nails and glass.

Because of this precaution, we do not average more than five service calls a month for flat tires.

We use a lot of retreads. But we do not retread anything but six-ply tires and we do not retread any carcass with a cut or nail hole. Any good carcass that is alive and not punctured will take a retread and give good service. We use retreads on both front and back wheels, usually getting 25,000 to 28,000 miles on our tires originally and then getting two-thirds this mileage on the rebuilt tires. We follow factory recommendations on tire sizes.

Another thing that gives us better tire mileage as well as safer brakes is that of watching the differential grease. When we put in differential grease, it is cold and we fill it to one-half inch of the drain. But when the trucks run all day and come in, the grease is hot and has expanded. We open the drain and let the grease drain to a level with the hole; otherwise, this expansion forces the grease through to the brake bands, not only making unsafe brakes, but causing the brakes to grab in such a way as to soon wear out the tires.

The two helpers, who have been trained right in our shop, and myself do all the work. They can do motor work, brake work, and all heavy work including washing and greasing. We do our own welding, motor work, electrical work, frame and realigning, body work, painting and lettering. We paint the trucks just when they need it, and keep the lettering touched up and attractive at all times.

Lubrication is dependent upon conditions, but the trucks are continually being rotated for complete lubrication. Washing is done daily if necessary to keep clean; however, each Sunday morning, the entire fleet is washed.

The two helpers take it Sunday about, coming down to wash the fleet. The one who works Sunday gets a day off during the week—then when the fleet has been washed, these trucks are parked on two sides of the plant, being lined up for a full block on two streets. This Sunday display of attractive trucks has served as a good advertisement and many customers and prospects have commented on our Sunday display of our delivery fleet.

Three years ago we attained the

ANNOUNCING THE NEW---SENSATIONAL

Road Service Jack

with patented
QUICK REMOVABLE HANDLE



Illustration above shows how slight finger pressure on two levers removes handle . . . Illustration at right shows how easy it is to put this jack in a service car. Ask your H-W Jobber, or write us for details.



● Designed at the request of
fleet operators and tire
service men . . .

THIS new Hein-Werner Hydraulic Jack can easily be carried to the job in any service car. Easy to lift . . . Easy to position . . . Weight of jack only 73 pounds . . . Weight of handle only 11 pounds.

Quick removable handle . . . No bolts or pins to be taken out . . . Slight finger pressure on two levers removes handle . . . Just as easy to put back . . . No tools required . . . Built Right—Priced Right.

MODEL "W"

\$24.50

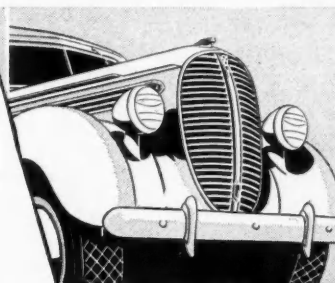
NET TO DEALER
(TAX INCLUDED)

When used in the shop, handle can be removed after car is jacked up or when jack is stored under work bench . . . Length of jack 25" . . . Length of handle, extended 47½" . . . Low point 4" . . . Saddle high point 20" . . . Saddle 6½" diameter . . . Capacity 3000 pounds . . . Dealer's price, \$24.50 (West Coast \$26.75.)

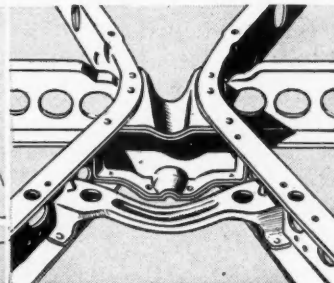
HEIN-WERNER MOTOR PARTS CORP.,

Waukesha, Wis.

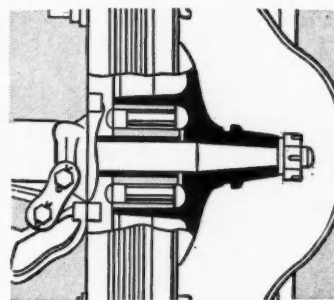
A FORD COMMERCIAL CAR IS GREATER THAN THE SUM OF ITS PARTS



New front end gives units business-attracting appearance.

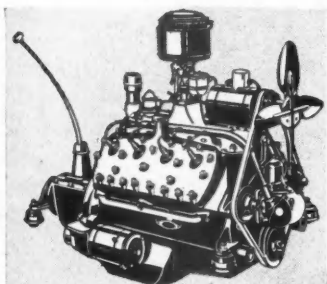


Rugged strength in Ford frame construction braced with sturdy box-section X-member.



$\frac{3}{4}$ -floating rear axle for high power-transmitting efficiency. An earmark of fine truck construction.

—BUT LOOK AT SOME OF ITS PARTS!

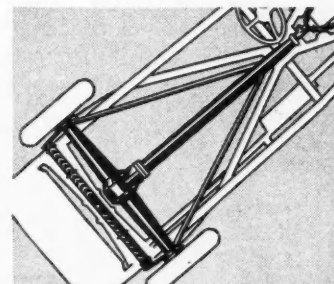


V-type 8-cylinder engines—60 or 85 hp.—make Ford performance a byword.

Some truck buyers like to go over a unit part by part and judge it on its "points." A few of the features of the 1938 Ford V-8 Commercial Car are shown here. Some are interesting because they are new improvements. Some are time-proved features which continue to be newsworthy because they represent the type of expensive design and construction that Ford is able to offer at low cost.

But—a Ford Commercial Car is *greater* than the sum of all its parts. Into every unit goes the experience gained in 21 years of truck-building leadership. *Back* of every Ford V-8 is the constant ideal—to build strong, light-weight units that put **MORE PAY IN EVERY PAYLOAD**. And *with* each commercial car go the time-and-money-saving advantages of the Ford Engine and Parts Exchange Plan.

You get value *far beyond* its price when you get a Ford V-8.



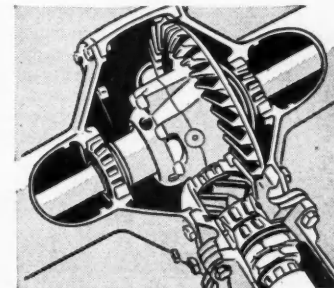
Full torque-tube drive relieves springs of driving and braking stresses.



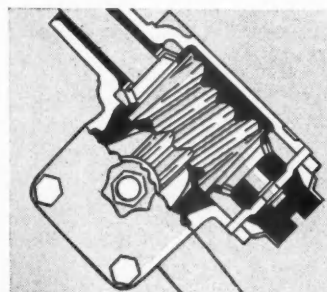
New welded all-steel cab gives extra strength, safety, comfort. 3 inches more head room.

FORD V-8

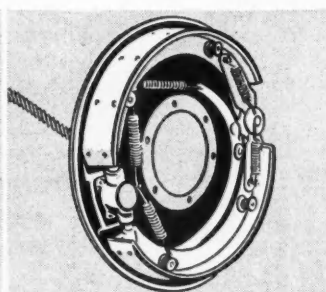
TRUCKS AND COMMERCIAL CARS



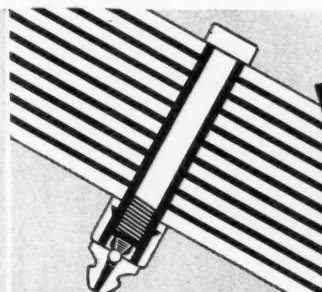
Straddle-mounted driving pinion serves to reduce strain on the pinion shaft.



Worm and roller type steering—for easier turning and parking... easier handling under all conditions.



Easy-Action Safety Brakes give the safety of steel from pedal to wheel.



Increased riding comfort and quiet provided by interleaf spring lubrication.

ARRANGE
FOR AN
"ON-THE-JOB"
TEST

low average operating and maintenance cost of 3.79 cents per mile, which was cited as one of the lowest cost in America. Since that time, motor analyzing and precision tools plus other improvements have helped us to further correct deficiencies and to improve efficiency. Today, our cost varies from $3\frac{1}{4}$ to $3\frac{1}{2}$ cents a mile . . . and this cost covers everything, such as gasoline, tires, oil, parts, labor, administrative and our proportional part of the rent, insurance, depreciation and interest.

53,825 Mi.

(CONTINUED FROM PAGE 29)

- Repair radiator leak, \$6.22.
- Replace tail light bulb (twice), \$.32.
- New set of 6 tires and tubes (exchange price), \$150.
- Replace front bumper bolt, \$.40.
- Adjust brakes twice, taper ends of brake linings, shift wheels and tires, clean and adjust front wheel

bearings, adjust brake pedal, \$9.72.

Replace oil lines to filter, \$1.52.
Replace floor mats and ventilator rubber, \$5.40.

Replace water pump, \$6.33.

Total, \$204.98.

23. Total cost: gasoline, all oil used, lubrication work and replacement, \$994.01.

24. Total cost per mile (based on Item 23), \$.01847.

25. Total cost per ton-mile (based on Item 24), \$.00399.

26. Third gear used in climbing hills, 1182 times.

27. Second gear used in climbing hills, 81 times.

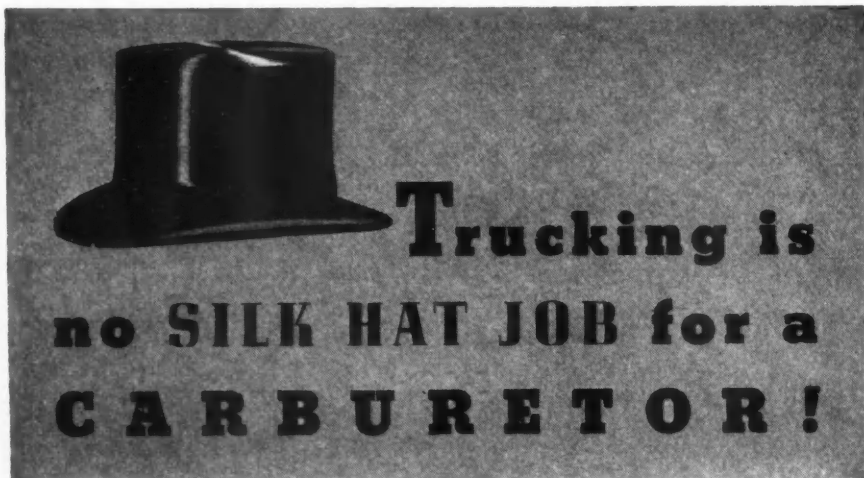
28. Water added to radiator eleven times, total amount added, 11 qt., $1\frac{3}{4}$ pt.

29. Original set of tires ran 32,936.8 miles before replacement.

30. The above summary includes Run up Pike's Peak on June 28, carrying the full test load and after completing 52,319.7 miles of test running.

The climb was made without mechanical failure or trouble of any kind. Frequent use of the gears was necessary.

Time of climb, over the recognized $12\frac{1}{2}$ -mile Pike's Peak Highway Race Course, 61 min., 41 $\frac{2}{5}$ sec.



ZENITH Carburetors are designed and built for the sort of job they're expected to do!

Qualities that make for stamina are inherent in every one of them.

They're made to stand up under gruelling conditions—to take a beating every day and twice on Sundays.

That's why truck engineers specify Zenith as standard equipment on a great majority of their 1938 models. They know every Zenith Carburetor is ruggedly built. That it is economical, easy starting. And they know its efficiency extends throughout the whole driving

range—from idling to open throttle.

And, of course, Zenith's power jet system assures full power without loss of economy.

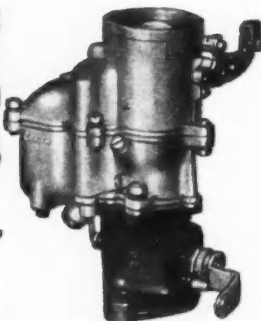
Older model trucks will pull better, give you better gasoline mileage and better traffic performance after a Zenith installation. So try it. Yes—and install a Zenith heavy-duty Fuel Filter at the same time. It's $2\frac{1}{2}$ times as efficient as the average 100 mesh screen filter. Quickly installed—cleaned in a few moments, requires no cartridge or packing renewal. Send coupon for complete details.

ZENITH CARBURETORS

"Built for
Permanence



Calibrated
for Performance"



**ZENITH CARBURETOR DIVISION
BENDIX AVIATION CORPORATION**
696 Hart Avenue, Detroit, Michigan

Send full particulars regarding Zenith Fuel Filters and Zenith Carburetors for following engines:

Make and model of vehicle.....

Name.....

Street Address.....

City..... State.....

Nature of Business.....

road work and after about 30,000 miles of it, quite a few of the front cross members on the half-ton Fords break. The weak spot seems to be where the cross member is clamped to the front spring. To prevent this break we use a $\frac{3}{8}$ -in. piece of boiler plate shaped to fit underneath the cross member. Cut a hole for the centerbolt and then clamp the reinforcement together with the spring with the centerbolt and the assembly is ready to install in the truck.

Bright Star Flashlight

The Bright Star Battery Co. has announced a new industrial flashlight featuring a case of plastic material of high mechanical and dielectric strength, replaceable switch and unbreakable lens. A red translucent ring around the lens is an added safety feature.

When writing to advertisers please mention Commercial Car Journal

COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

KEY

(CONTINUED FROM PAGE 23)

temperature will not exceed 185 deg. If shielded the heat dissipating surface of the coil should be properly ventilated. It is also necessary to protect the coil from moisture conditions. Moisture difficulties generally result from mounting the units so they are subject to road splash or washing particularly if occurring while the units are hot. The hot parts are cooled by the water and due to the resulting contraction of the assembly, tend to draw moisture inside.

Dirt is also harmful to ignition equipment not only causing bearing difficulties but providing low resistance leakage paths over the surface of the insulating materials.

How to Avoid Pitted Points

Pitting of the contact points is the transfer of metal from one contact to the other. Under certain conditions points will tend to transfer in one direction while with other conditions the transfer will be in the other direction. Satisfactory operation is obtained when circuit constants are adjusted so that these tendencies balance each other. In case of pitting difficulty various units of equipment can be changed to obtain the necessary correction.

To correct pitting of the negative contact or transfer of metal to the positive contact the following changes will help.

1. Increased condenser capacity.
2. Shorter condenser lead.
3. Separation of low and high tension coil distributor leads.
4. Reduction of primary current by use of resistance.
5. Decrease in the amount of engine idling time.

For transfer of metal to the negative or pitting of the positive contact reversal of these suggested changes will help correct the trouble.

Contact points may develop a high resistance coating because of excessive arcing due to either wrong electrical constants or to the presence of foreign materials on their surfaces. In cases of point oxidation, wrong electrical constants usually permit too much primary current. Coils with too low primary resistance, such as most so-called high capacity ser-

vice types allow too much primary current for the contact points to handle.

High battery voltage due to various battery conditions, unregulated generators or poor connections in regulator to generator circuits may raise coil voltage sufficiently that increased coil current will oxidize the points. A combination of cold battery with cold coil windings as obtained in sub-zero weather operation may allow too much primary current through the contacts. High resistance or loose

connections in the condenser circuit will also cause oxidized points.

Condensers in which leads do not make good contact with the foil will also cause this trouble and yet test OK on most condenser testers. Measurement of series impedance or so-called damping is the only way of detecting this trouble. Oil and crankcase vapors accelerate contact oxidation and wear. Oil seals in the distributor bearing and adequate cap ventilation correct this condition. Iron, copper, brass and various

SIMMONS

Silver King HYDRAULIC JACKS

Easy
TO OPERATE
Easy
TO SERVICE

Higher lift from a given starting height makes Simmons Silver Kings easier to place in position. Proper distribution of all side stress, elimination of leaks and exact machining of all working parts to very close tolerances assures full use of every ounce of pressure. Full rated capacity of any model can be lifted with sixty pounds effort on the end of the handle.

Occasional cleaning of easily removed oil strainer is practically the only attention ever required. With one-third less parts than other jacks, Silver Kings require the minimum of service.

for
BUSES
TRUCKS
PASSENGER
CARS, and
INDUSTRIAL USES
Capacities from
1½ to 30 tons.

• Manufacturers of replacement parts for Ford, Chevrolet and Plymouth; Silver King and Power King Hydraulic Jacks; Mufflers for all cars; Carburetors for all cars.

"Give you the lift you need"



All Silver Kings have one-piece malleable bodies with pump unit built in main casting, automatic breather plug and other exclusive features. Sizes for every requirement.



Hydro-Pneumatic BUMPER JACK

No stooping, no kneeling to elevate the car. Safety release valve lowers car at any speed you desire. Rugged—strong—2-ton capacity.



MODEL 800 FLOOR JACK

Rated at 2 tons, tested to 4 tons. Heavy Duty floor jacks of 5-ton and 7½-ton capacities also available.

The **SIMMONS MANUFACTURING COMPANY**
ASHLAND, OHIO

SEND NEW JACK CATALOG TO:

Name _____

Address _____

City _____ State _____

other particles lodged on the surface will cause trouble.

How to Choose a Coil Tester

It is important that the correct type of tester be used in checking coil condition. Testers which have been brought to our attention can be divided roughly into three groups. The first type uses a variable spark gap as the measuring instrument. An attempt is made to establish a gap length for each coil at different speeds. This type is unsatisfactory

because the spark gap fails to hold its calibration. The voltage at which the spark breaks down changes with the operation due to the change in shape of the points. Another fault is that the insulation of the gap absorbs moisture and thus provides a leakage path sufficiently good to materially lower the voltage which the coil can produce.

The second type of tester uses a milliammeter in series with a fixed spark gap. This type is an improvement over the first type mainly be-

cause of better construction. The spark gap is still sensitive to the same troubles and in addition, in order to obtain a steady meter reading it is necessary to operate the coil on a lower secondary voltage than will be encountered during actual service. Consequently a coil that had a breakdown which would occur above the voltage at which the gap operates, will check okay but will cause missing of the engine at low speeds or on acceleration.

The third type of tester does not measure the secondary voltage. It operates the coil with the secondary terminal disconnected so that the full secondary voltage is applied across the insulation of the coil and no extra variable losses due to tester insulations are added to the system. It measures only the losses in the coil itself. This tester is much more sensitive than either of the other types and will detect partial failures which the other two will not reveal. For this reason it is a better tester for the maintenance organization because defects can be found before they have progressed to the point of causing trouble and such coils can be removed before they cause failure on the road. Failures such as leaky insulation, wet secondaries, one turn shorted in the primary and ten turns shorted in the secondary can easily be detected. This tester is not as sensitive to variations in coil temperature as the other types and a small defect such as one turn shorted in the primary makes a much greater change in the reading than is made by having the coil hot, whereas the other types will not even detect one shorted turn but will show a large change between hot and cold coils.

Further proof of the superiority of the latter type is that the use of the first and second type tester did not decrease the percentage of good coils returned to our plant for replacement. Use of the latter type has decreased the percentage of good coils returned to one third of the former number. This tester is easily calibrated and easy to operate.

Condenser Capacity Must Be Right

The condenser must be able to withstand the voltage applied to it by the coil. Since this voltage is usually not more than 200 volts and rarely more than 350 volts we have selected a peak of 500 volts as a suitable value for the breakdown test. This is



● A builder as well as a big user of many types of milk and ice cream trucks, McDonald Dairy Company has acquired a thorough and practical knowledge of body materials during both construction and operation.

It is significant to truck buyers seeking the maximum in weight saving, payload space and repair-free service that Plymetl is the choice of McDonald Dairy Company . . . and many other truck builders and operators . . . for panels in ALL its trucks . . . including wholesale milk trucks and trucks for hauling milk in from the farms.

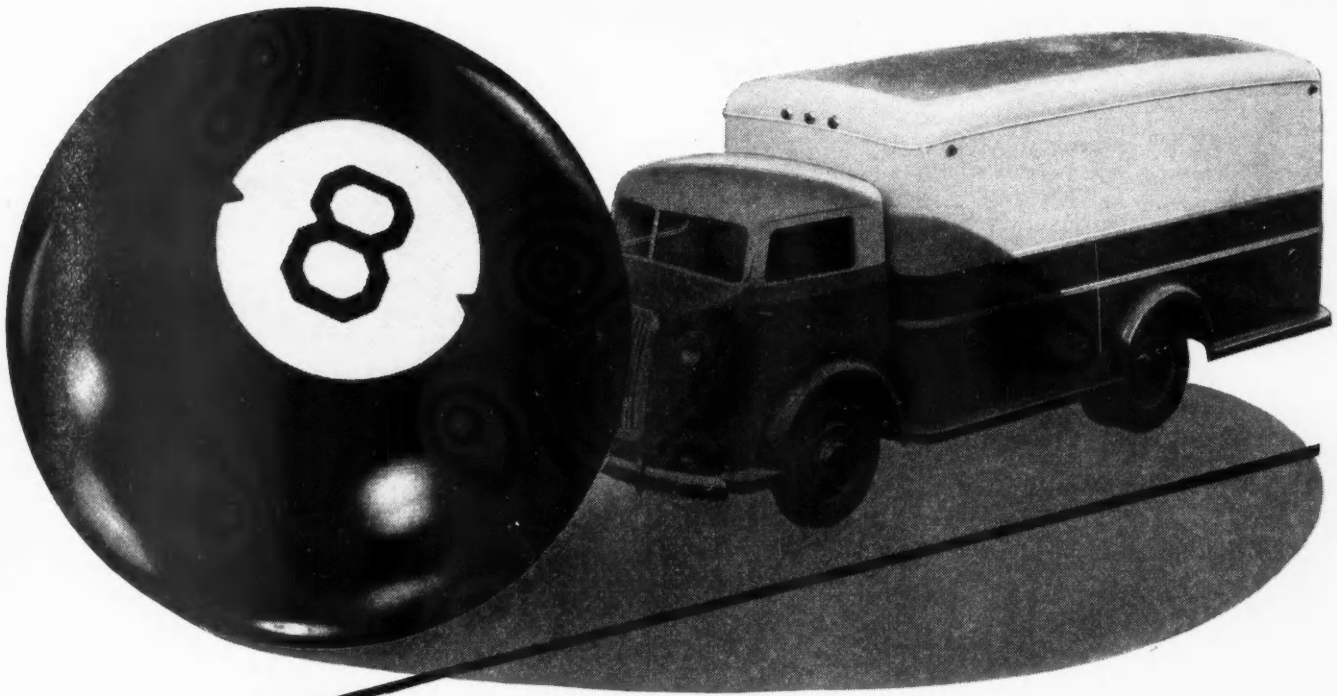
Illustrated above is an economical, eye-appealing McDonald-built cab-over-engine job with outside panels of PLYMETL and PHEMALOID top and bottom. Write us for full facts on the Plymetl and Phemaloid features that pay dividends during both construction and operation.

PLYMETL

Haskelite Manufacturing Corporation

208 West Washington Street,
Chicago, Illinois

Offices in Detroit, New York, Los Angeles



Don't put your truck,
your driver, your load
Behind the Eight Ball!

A TRUCK with a load of valuable merchandise puts a pretty heavy responsibility on the driver . . . and plenty on the owner, don't overlook that! There's the truck itself, the body, the load—quite an investment. There's the potential loss of a property damage suit—not to mention personal liability that can run far higher than average insurance covers.

Why let such an Old-Man-of-the-Sea straddle a driver's neck? Why not ease the strain, cut the risk enormously and be money ahead, by installing genuine Bendix B-K Controlled Vacuum Power Braking on every truck you operate? It is not costly—far from it. It has been proved excellent through more than a dozen years of faithful service on millions of vehicles all over the world. It's a BUY—and virtually every big fleet operator in America bears witness to this.

Remember: with Bendix B-K Power Braking, the original braking system is left intact; no waiting for pressure to build-up; you *always* have brakes.

Also—Bendix and Bendix *alone* provides 1085 authorized, competent, trained B-K service stations dotting the highways of America, ready to keep your Bendix B-K Power Braking 100% efficient.

BENDIX PRODUCTS DIVISION
OF BENDIX AVIATION CORPORATION
401 Bendix Drive South Bend, Indiana

BENDIX



Controlled Vacuum
POWER BRAKING

**WHY MOST POWER
BRAKES ARE BENDIX**

- ★ More Than Meeting All State Laws for Trucks and Trailers
- ★ Least Weight Added
- ★ Fewest Added Parts
- ★ Low First Cost
- ★ Practically No Maintenance
- ★ Instant Remote Control
- ★ All Emergency Features of Train Operation
- ★ Quick, Easy Installation
- ★ Original Brake System Being Left Intact
- ★ Fully Controlled Power Application
- ★ A Nation-Wide Service Organization
- ★ Years of Power Braking Experience and Unapproached Protection Over Future Years of Satisfying Service

COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

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enough to show up a weakness and low enough not to cause damage to a good unit.

The condenser should also have the desired capacity. It has been our practice to adjust the capacity of the condenser to suit the operating conditions in order to obtain best breaker contact condition. We use condensers with capacities from .15 mfd to .50 mfd. The tester should be capable of measuring the capacity with an accuracy within 10 per cent.

It is essential that the tester de-

tect if extra resistance has developed in the condenser such as corroded connections between the terminal and lead or between the leads and the foils. The trouble is one which is difficult to find since the connection may be good enough to allow the condenser to take a charge slowly but may interfere when the condenser operates at the speed required in the ignition circuit. This extra resistance is most easily detected by applying a high frequency voltage to the condenser; the higher the fre-

quency the more easily the resistance can be detected. This characteristic has been called damping by several tester manufacturers. It is desirable to shake the condenser while making this test.

The fourth characteristic is insulation resistance, which is a measure of the leakage through the insulation. Leaky condensers have but little effect on the ignition performance. Leakage is of interest because a high leakage condenser is more apt to break down. This test then, is more of an insurance against future trouble than a means of locating prevailing trouble. The insulation resistance decreases rapidly with increased temperature so that a hot condenser is more likely to test low than a cold one. Most testers are set to test cold condensers and good condensers may test low if tested hot.

Distributor should be lubricated at least every 2000 miles. Data from various types of fleets indicate that distributors are removed for inspection and checking of contacts condition and point opening at from 2000 miles to 25,000 miles, the average being around 10,000 miles. The distributors are removed, overhauled and all worn parts replaced at from 45,000 miles to 150,000 miles with the average being around 85,000 miles.

CCJ Quiz Answers

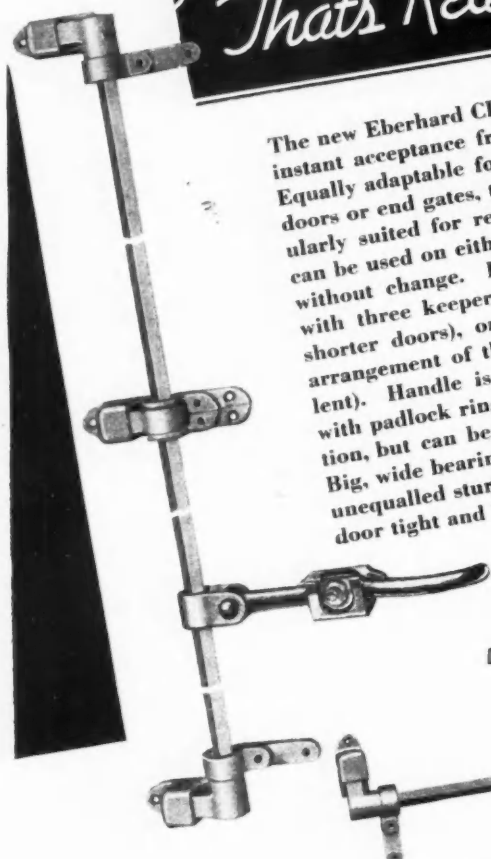
(See page 17)

1. Kansas (the first state to have such a law.)
2. Cleeenie the Plug.
3. Seventy-fifth birthday (and we add our congratulations).
4. Continental.
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6. Tip Off Girls (and not a bad picture either).
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9. Not painted (the new Greyhounds have no fenders).
10. Cheese (and Kraft-Phenix is the company name).

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The new Eberhard CLAMPTITE door lock has met instant acceptance from truck builders and users. Equally adaptable for use on single doors, double doors or end gates, the CLAMPTITE lock is particularly suited for refrigerator and van bodies and can be used on either right-hand or left-hand doors without change. Furthermore, it can be applied with three keepers (as shown), two keepers (for shorter doors), or with two keepers and a cross arrangement of the handle (triple binding equivalent). Handle is furnished with built-in lock or with padlock rings and is not limited to center position, but can be located at most convenient point. Big, wide bearings and ample size of parts provide unequalled sturdiness. Plenty of leverage to clamp door tight and break frost seal.

See your dealer immediately
or write direct to
EBERHARD MANUFACTURING CO.
Division of The Eastern Malleable Iron Co.
CLEVELAND, OHIO

The illustration at the left shows the CLAMPTITE as applied to single or double doors with built-in lock handle and three lugs, bearings and keepers. Note position of handle for most convenient operation. For shorter doors middle lug, bearing and keeper are simply omitted.

For end gate with double doors above, one keeper may be mounted on door, as shown. Note center position of padlock handle for best appearance.

EBERHARD Clamptite

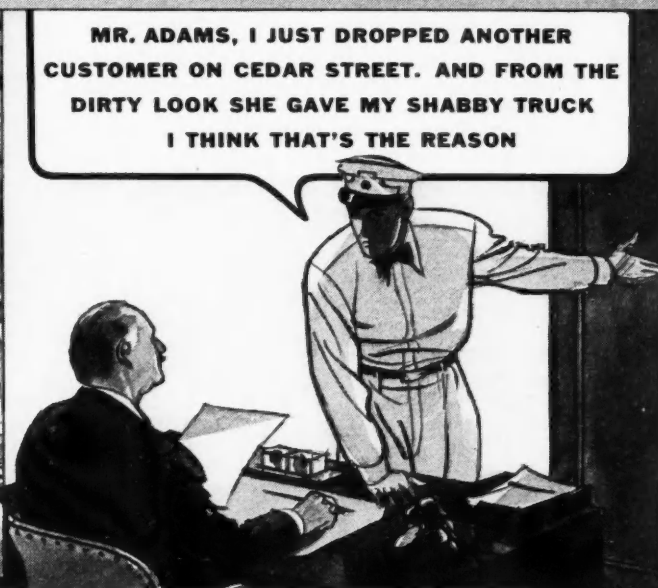
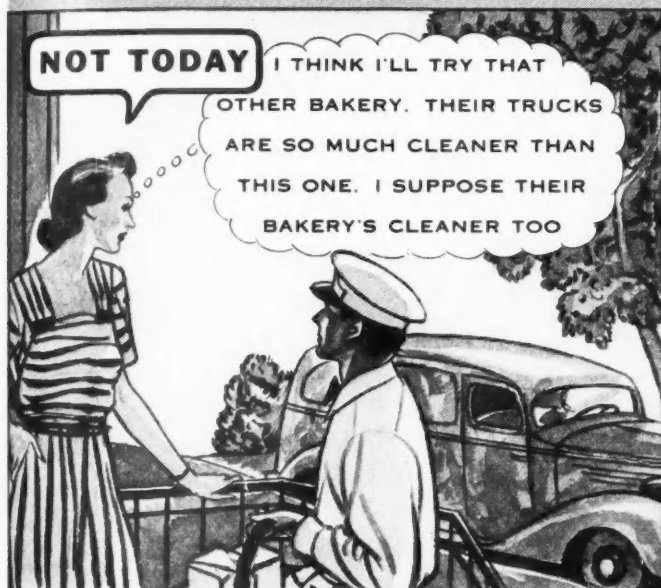
UNIVERSAL DOOR & GATE LOCK

Ask for Bulletin NO. 130

E

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They don't see you...they don't see your plant
BUT PEOPLE DO SEE YOUR TRUCKS
and judge you by their appearance!



I'D LIKE TO TALK TO YOU ABOUT PAINTING MY TRUCKS. WHAT FINISH DO YOU USE?

I USE DULUX. I'LL BE RIGHT OVER AND TALK TO YOU ABOUT IT

GOT THREE MORE CUSTOMERS TODAY, BOSS.... AND THEY ALL GAVE ME A PAT ON THE BACK ABOUT THE WAY MY TRUCK LOOKS



DO YOUR TRUCKS REFLECT CREDIT ON YOUR BUSINESS?

THE snap judgment that so many people form can easily lose business for a man whose trucks are shabby.

Business men everywhere are well aware of this. That's why thousands of trucks are handsomely finished with DULUX. First and last, of course, DULUX saves money because it lasts longer. But DULUX also gives trucks the sparkling, clean appearance that

builds good will wherever they're seen.

DULUX is the heavy-duty finish with the showroom sparkle.

Made to *keep* its beauty on all-year exposure. More economical because it means fewer trips to the paint shop.

If you'd like full information about DULUX, write to E. I. du Pont de Nemours & Co., Inc., Finishes Division, Refinish Sales, Wilmington, Del.



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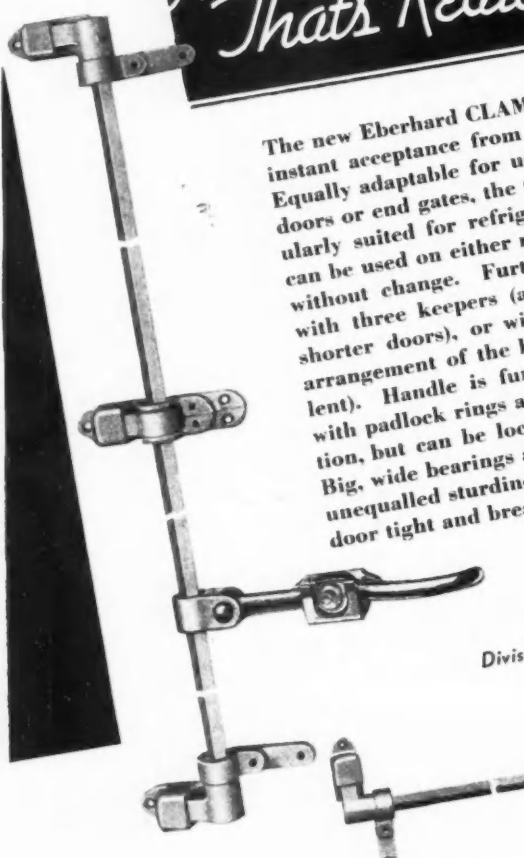
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See your dealer immediately
or write direct to
EBERHARD MANUFACTURING CO.
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CLEVELAND, OHIO

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EBERHARD

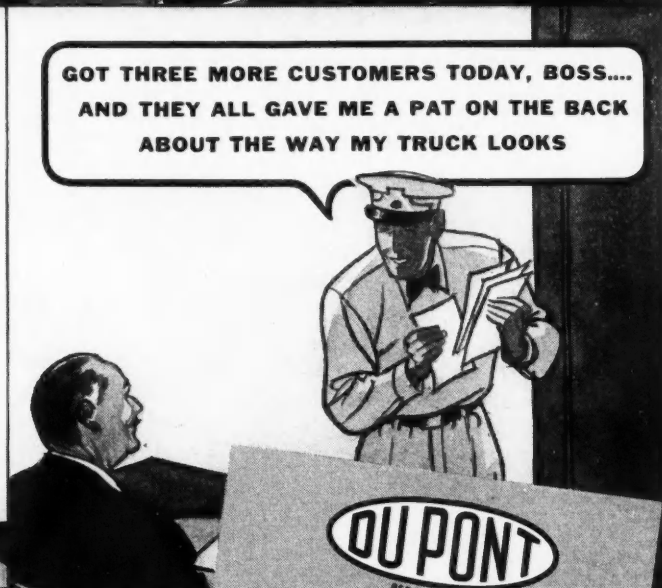
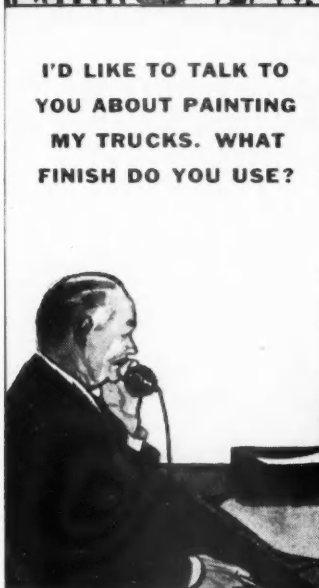
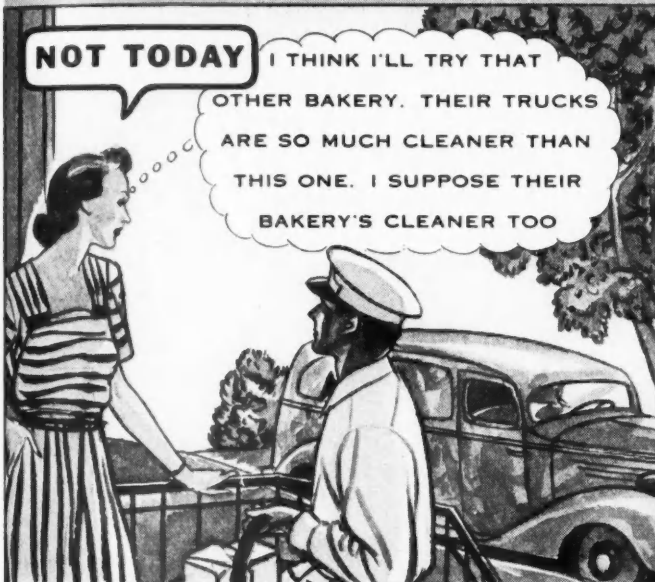
Clamptite

UNIVERSAL DOOR & GATE LOCK

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BUT PEOPLE DO SEE YOUR TRUCKS
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DO YOUR TRUCKS REFLECT CREDIT ON YOUR BUSINESS?

THE snap judgment that so many people form can easily lose business for a man whose trucks are shabby.

Business men everywhere are well aware of this. That's why thousands of trucks are handsomely finished with DULUX. First and last, of course, DULUX saves money because it lasts longer. But DULUX also gives trucks the sparkling, clean appearance that

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DULUX is the heavy-duty finish with the showroom sparkle.

Made to keep its beauty on all-year exposure. More economical because it means fewer trips to the paint shop.

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BETTER LIGHTS

FOR LONGER NIGHTS




K-D has the call for Fall when longer hours of night driving make more lights and *better* lights imperative. K-D Products are backed by K-D quality which is kept up to such lofty standards that they EXCEED S.A.E.-I.E.S. specifications and pass every test with a big plus margin.

Write for the handsome, just-off-the-press copyrighted K-D CATALOG NO. 38 —it's an illustrated "from life" cyclopedia of the best lamps ever made.

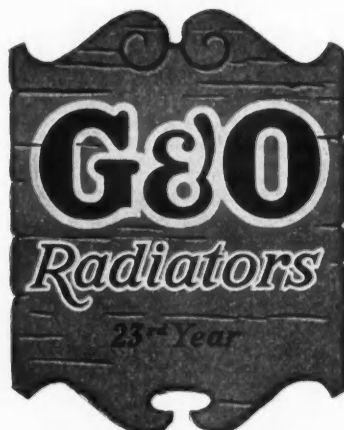


**K-D
SHO-TURN**
Direction Turn Signal
MODEL No. 565-A
6 types in combinations
for every purpose

Members by invitation . . . Rice Leaders of The World Association



The K-D LAMP CO.
CINCINNATI • OHIO



G & O RADIATORS ARE GOOD RADIATORS

(We Believe They're the Best)

They are designed and built for truck service. Strong, sturdy, efficient radiators that have been "delivering" for 23 years.

THE G&O MANUFACTURING CO.
NEW HAVEN CONNECTICUT

PRIVATE CARRIERS

(CONTINUED FROM PAGE 32)

bers relative to Federal regulation of hours of service and standards of equipment of private motor carriers.

2. Consideration of procedure in presenting these views at the Interstate Commerce Commission hearings of this subject.

3. Analysis of those existing state laws or legislative proposals that might be construed to bring the private carrier under public utilities commission regulation the same as for-hire carriers.

4. Preparation of material for presentation before state commissions and legislative bodies during the sessions of the 44 State Legislatures beginning January, 1939.

5. Establishment of organization's position with respect to national standards and sizes and weights, and decide method for presenting views of private motor carriers at ICC hearings on this subject.

Among the problems of a less urgent nature are:

1. Study of means to determine uniform method of taxing motor trucks in an effort to arrive at an equitable tax on private motor trucks, graduated on the basis of either gross weight or carrying capacity.

2. Position with regard to reciprocity and state port of entry laws.

3. Promotional activity to enhance safety record of private motor truck operators.

4. Establishment of position with regard to dedication of all funds collected from special motor truck taxes to construction and improvement of roads in the interest of safety.

Headquarters of the Council will be established in Washington, D. C., with a secretary-manager in charge.

Ford Brake-Floater

The Super Brake-Floater, manufactured by the Super Brake-Floater Corp., Chicago, is designed to eliminate chatter, groan and fade from Ford brakes on all models from 1928 to 1938. The Floater is a simple device, and because of its free floating ac-

tion, insures full-circle contact of both brake shoes, giving self-energizing results and braking action comparable to hydraulic brakes. Two models are supplied, one for models 1928-1934 and the other for 1935-1938. Installation is easily made.

Vapo Dom Fuel Controller

Vapo Dom, made by the Vapo Dome Corp., 684 Fox St., Denver, Colo., is a unit for controlling fuel line pressure, and is installed in the line between carburetor and pump. The light ends are driven into the Vapo Dom under fuel pump pressure, and the heavy ends of gasoline are delivered to the carburetor.

Construction is such that a vent on the inside allows the light ends to be driven to the top and enter the secondary chamber, from which chamber the light ends are driven to the outer edge of the Vapo Dom and delivered back to the primary chamber, where the heat is dissipated from the fuel into the body of the Vapo Dom and then it is taken back into the line and delivered to the carburetor in a liquid form.

The Vapo Dom controls fuel pump pressure without increasing it, due to the heat dissipation at the fuel pump body; it maintains a constant gasoline level in the carburetor float bowl; it takes the surging action off of the carburetor needle and seat; it controls the pulsating action of the fuel pump, thereby allowing a flow of liquid fuel to the carburetor at all times.



CONSIGN YOUR *Heavy* LOADS TO GMC

Thirty seven years a leader in heavy-duty truck manufacture, GMC has the most complete line, and the most options in equipment! Both conventional GMC's and cab-over-engine types are available. GMC's heavy-duty engines have the extra power for which valve-in-head design is noted. GMC frames, axles, transmissions and springs follow advanced heavy-duty design. GMC prices are now crowding the lowest—and buying terms liberal. In the heavy-duty field, too, GMC is "the truck of value."

Our own Y.M.A.C. Time Payment Plan assures you of lowest available rates

If it's heavy, put it on a GMC! Pianos, beer barrels, steel girders—or whatever the load—GMC's can take it!



GENERAL MOTORS TRUCKS & TRAILERS

GENERAL MOTORS TRUCK & COACH • DIVISION OF YELLOW TRUCK & COACH MANUFACTURING COMPANY
PONTIAC, MICHIGAN

SIZES & WEIGHTS

(CONTINUED FROM PAGE 33)

plementing the information obtained or placing a different interpretation upon it. In this work the Commission will welcome the cooperation of any committee, committees, or organization which the States may set up or use for the purpose.

II. Legal considerations.

The Commission's staff, with the cooperation of other Federal departments, will study the many questions presented in determining the proper line or lines of demarcation of Federal and State powers in the control of road use.

III. Economic and engineering investigations.

A. Road facilities and vehicles used in interstate transportation.

With the cooperation of the Bu-

reau of Public Roads and State agencies working with that Bureau, the Commission will assemble for selected areas data which will enable classification of roads according to the degree of their importance as instrumentalities of interstate transportation, either for-hire or private. The "feeder" use of roads and the extent and character of "through" and "local" interstate traffic will be developed. Data will be presented as to the general physical characteristics and condition of the respective groups of roads and roadway facilities and as to the characteristics of the vehicles using them. The State-wide Highway Planning Surveys, to the extent they will be available for the purpose, will be a principal source of information of the kind required.

B. Highway costs.

Information as to the general range of the first cost of the different types of highways will be gathered in order to estimate, in a broad way, the cost of bringing the road systems and appurtenant facilities in

selected areas (see A above) to defined standards. Data on maintenance costs also will be assembled. Special consideration will be given to the Federal-aid system. The construction data and experience of the Bureau of Public Roads and the financial statistics collected by that bureau and the several States will be the principal sources of information.

C. Characteristics of vehicles in relation to road and bridge facilities.

Existing information will be assembled respecting the stresses which vehicles of various sizes or given conditions of loading transmit to road pavements, supporting foundations and bridges. Such specific matters as the effects of differences in the number of axles, of axle spacings, and tire widths will be considered. Trends in vehicle design will be correlated to the extent that is possible with trends in the design of highways. The width of vehicles will also be considered in its bearing on road design.

A \$5000 ADVERTISEMENT

Excerpts from the entry blanks of managers and mechanics of fleet shops, sent us in Grey-Rock's recent contest... asking experience reasons...

**"WHY
GREY-ROCK
IS THE
FASTEST-
GROWING
LINE?"**



"A complete brake-balancing system needing only two blocks and the GUIDE" * * * "Orange and black edges so we can't go wrong" * * * "Grey-Rock pioneered our education in servicing brakes, taught us scientific lining selection" * * * "Cut my inventory to the bone" * * * "Speeds up schedules in all kinds of weather" * * * "Trucks, buses, trailer trains, and odd units all made

Grey-Rock

UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc.,
MANHEIM, PA.

D. Relation between vehicle sizes and weights and costs of operation and ability to render service.

Drawing on data assembled under A above, and on the results of field observations and inquiries of carriers and shippers, an effort will be made to show the requirements of shippers with respect to unit loads of different classes of commodities, the relation between different sizes of pay-load and ton-mile costs, the cost of transfers of lading at State lines, the effects of differences in the State limitations on interchange arrangements, etc. Cost factors in passenger transportation will also be considered.

IV. Relation between sizes and weights of vehicles and highway safety.

Consideration will be given to the relation between sizes (length, height and width) and weights of vehicles and highway safety, including such factors as maneuverability, ease of passing, center of gravity of high loads, sight distances, road structure clearances, and the special problems

presented by the transportation of dangerous articles. The effects of different combinations of vehicles will also be considered.

Performance factors—braking ability, tire capacity, and “grade-ability”—the effects of overloading, the relations between weight limitations and operating speeds, and the relative importance in safety of a large number of small vehicles and a smaller number of large vehicles, are other topics to be investigated.

At the request of our Bureau of Motor Carriers, the Bureau of Public Roads has incorporated certain of the items listed above in the scope of certain tests of vehicle behavior under actual traffic conditions which it had previously planned.

Analyses of accident statistics will also be undertaken.

Conduct of the investigation briefly outlined above has been entrusted by the Commission to Division 5. Responsibility for the carrying forward of the various special inquiries, the conduct of hearings and the preparation of a preliminary report has been placed in the hands of Charles S. Morgan, assistant di-

rector, Bureau of Motor Carriers, with whom will be associated H. H. Kelly, chief of the Section of Safety of that Bureau, and various regular and special members of the staff of the Bureau.

Communications on any of the subjects listed above should be addressed to the Interstate Commerce Commission, Washington, D. C., attention of the Bureau of Motor Carriers.

Tax Methods Vary Widely

More than 40 systems of taxing motorists are being used by states to raise funds to match federal highway appropriations, according to a report just issued by the National Highway Users Conference. Among the many bases used by the states in computing registration fees, for example, are horsepower, gross weight, value, list price, age, size of tires, number of times registered, number and size of cylinders, kind of power, mileages and type of use.

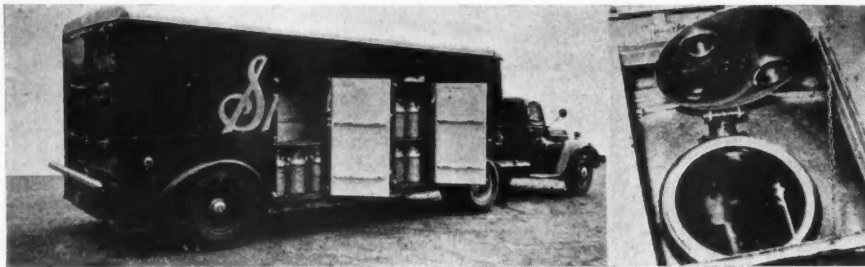
AC Sets Sales Record

Sales of spark plugs for replacement purposes during the month of July were the highest in the 30 years' history of the AC Spark Plug division of General Motors, according to Wilson S. Isherwood, general sales manager for the company.

WRITTEN—NOT BY US—BUT BY THOUSANDS OF BRAKE MEN

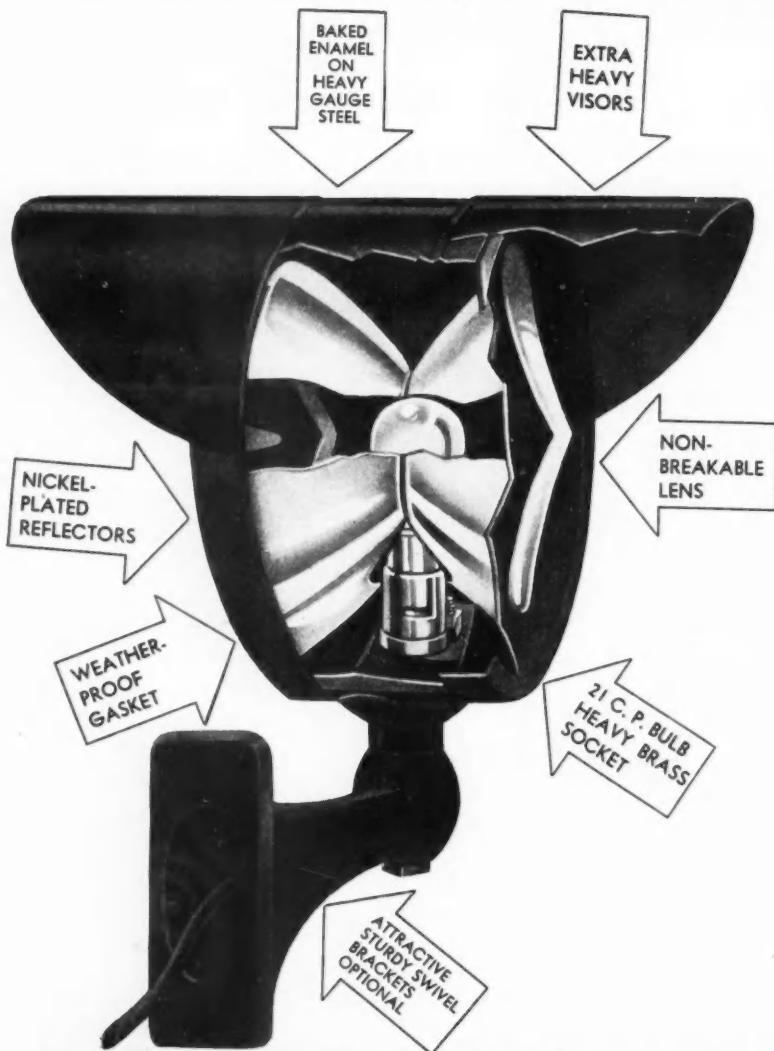
easy”***“Its smooth braking saves on upkeep of the whole vehicle”***
 “Now we can adapt brakes to operating conditions”***“Your blocks have both
 life and bite”***“Truthful advertising”***“A non-chiseled line”***“Real
 trouble-shooting guide”***“Makes a mechanic at home even with unfamiliar
 brake jobs”***“My company gets 40 to 50% more mileage per set”***“Benefits
 of engineering and laboratory tests”***“Linings to meet stringent inspections”
 “Reduced our liability premiums”“Drivers lose their nervous strain”
 “Grey-Rock pays for itself”“Ready help from jobber or engineer.”

BALANCED BRAKE BLOCKS



The Gar Wood-designed body built by E. L. Beerwort, Hartford, Conn., serves a double purpose for the Lyndonville (Vt.) Creamery Assn. The stainless Gar Wood tank (right) holds 1500 gal. while additional space provides for 80 10-gal. cans or a mixed load of dairy products. Dry Zero holds temperatures within 2 deg. An International tractor pulls the Fruehauf trailer

ARROW invites you
to look inside before you BUY



COMMERCIAL OPERATORS EVERYWHERE KNOW AND PREFER ARROW PRODUCTS. MARKER LIGHTS ... FLARES ... SIDE-VIEW MIRRORS ... REFLEX REFLECTORS ... FOG LIGHTS ... SIGNALS

*For Safety
Sake*

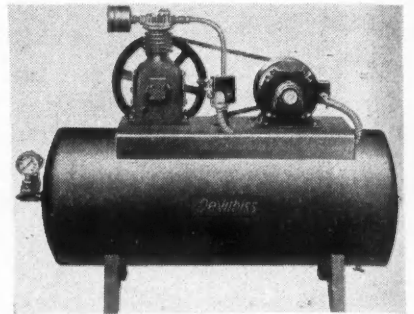
**ARROW SAFETY
DEVICE COMPANY, INC.**
MEDFORD, NEW JERSEY

NEW PRODUCTS

(CONTINUED FROM PAGE 44)

DeVilbiss Compressors

Two special, low price $\frac{1}{4}$ h.p. and $\frac{1}{2}$ h.p. single-stage air compressors for garages and service stations have been announced by The DeVilbiss Co., Toledo, Ohio. Both are of the horizontal type, with electric motor and compressing unit mounted on the air tank.



Type UEH meets pressure requirements of 150 lbs., with displacement of 1.49 cu. ft. per minute. Type UEJ delivers 2.79 cu. ft. of air per minute up to the same pressure. Both offer high quality with outstanding economy of operation.

Goodyear's New YKL

Distinctive in appearance and improved in construction, a new YKL truck tire, built of Rayotwist fabric like its predecessors, but including a special, new, ribbed-tread design selected after three years' experiment and test, is announced by The Goodyear Tire & Rubber Co., Akron, Ohio. The tire's sidewalls have new ribs to further resist scuffing, while the tread itself is flatter, providing more rubber contact with the road. Notched, circumferential ribs in the tread center aid in slow, even wear and provide traction. Tread is designed for all wheel positions on tractor or trailer in general haulage service.

Fram Replacement Cartridge

The Fleming Mfg. Company, East Providence, R. I., has announced a new low-priced P- $\frac{1}{2}$ Fram Replacement Cartridge which can be used by owners of cars equipped with filters of other makes. The

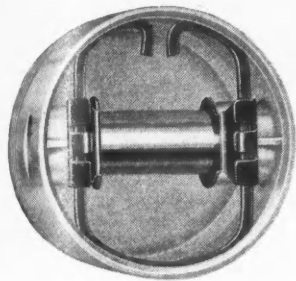


new Cartridges employ the well known Fram chemically-treated, waste pack method of filtering motor oil.

COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

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Ramco Expander for V-8 Pistons



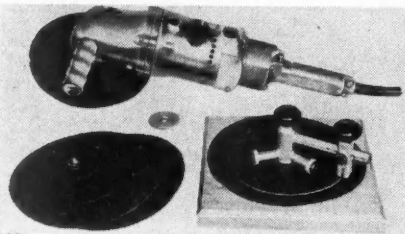
A piston skirt expander for Ford V-8 steel pistons is now being manufactured by the Ramsey Accessories Mfg. Corp. The new V-8 Steel Piston Expander is held at right angles to the wrist pin and parallel with the top and bottom of the piston, directing its thrust force exactly against the collapsed portion of the piston.

When delivered to the user the ends of the expander are clipped together and the installation is

made by dropping the expander in the piston, with the pin removed. The pin is then inserted through the openings in the lobes of the expander, the clip is removed and the installation is completed.

Van Dorn Two-Speed Sander

A versatile two-speed sanding unit, adaptable to use with both 7-inch and 9-inch abrasive discs, has recently been announced by the Van Dorn Electric Tool Co. As most of the wear on a sanding disc occurs toward the outer edge, it is possible, with this



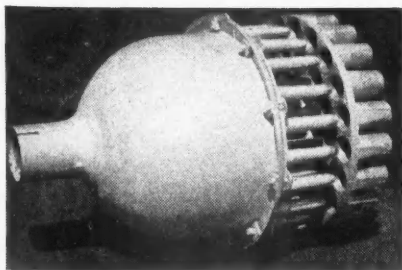
new machine, to get the maximum wear from a 9-inch disc and, by trimming off the worn outer surface, obtain a 7-inch disc that is practically unused. A disc cutter is furnished with each tool and is very simple and easy to use.

Alemite Wheel Bearing Lubricator

A new-type wheel lubricator, designed to save time and to enable proper packing of grease into bearings instead of only smearing it on the outside of the parts, has been placed on the market by the Alemite division of Stewart-Warner Corp.

Tests show that with the new device a wheel bearing can be properly lubricated in from 30 to 60 seconds, as contrasted with 2½ to 3 minutes by the hand method—both tests excluding the time required to remove and replace the wheel. All types of wheel bearings, ball and roller on passenger cars and trucks—excepting a few old-time truck bearings—can be lubricated with the new equipment.

Barr-Luke Exhaust Receiver



The Inventors Development Assn., Long Beach Cal., has the Exhaust Oxidizing Receiver which is designed to be used in place of a muffler. The device reduces the amount of carbon monoxide so that it is said exhaust gas is harmless in a closed garage

at least for a considerable length of time.

Herbrand Body Tools

New streamlined body and fender tools and a complete line of files and holders have been announced by the Herbrand Corp., Fremont, Ohio. Tools to fit angles and curves for every conceivable condition are included. All are drop forged or hand forged. No. B. F. 102 master body workers set includes 35 tools.

COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

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**This
CLAWING
WEDGE
DOES THE TRICK**

*Guarantees sure grip...
Multiplies chain mileage*



It takes a super-built chain to withstand the "gaff" of heavy trucking operations—pushing through loads that run into tons, and getting them through on time.

CLAW Truck Chains are geared to this kind of service—built for abuse. Take the CLAW wedge of the cross chain link, for example. A revolutionary idea in chains! This knife-sharp wedge of extra steel bites in at the point of traction—gives a positive hold. There's 20% more metal in these CLAW

links than you find in ordinary links (see diagram, upper left). And every CLAW cross chain link is built of CLAW-alloy, toughest chain metal known! No wonder CLAWS get trucks through quicker at minimum chain expense.

Special Indented Rim Chains eliminate play and prevent excessive breakage between cross chains and rim chains. The improved BLUE BOY Fastener snaps on in a jiffy, can't work loose.

Specify CLAWS for your trucks and get modern "traction insurance" at lowest cost per mile. Full particulars on request.



COLUMBUS-McKINNON CHAIN CORP.

General Offices: TONAWANDA, N. Y.

Plants at St. Catharines, Ont. Can. and Vereeniging, So. Africa

CLAW★ TRUCK CHAINS

Douglas Rotating Valve

The Douglas Rotating Valve made by the Douglas Automotive Corp., Chicago, Ill., is for installation in Ford and Zephyr engines. It is claimed that the rotation made possible by a patented cage construction causes the valve to give longer life than conventional valves as well as improved engine performance.

Hydraulic Dub-bul-up

The Carroll B. Vickers Mfg. Co., Buffalo, N. Y., is producing a device which will increase the pedal effort in any hydraulic brake system. It is mounted between the



master cylinder and the wheel cylinders. The device called the Pressure Dub-bul-up contains a piston with a two-to-one ratio and an adjustment which prevents overloading of the brake system. It can be installed in systems that are booster actuated.

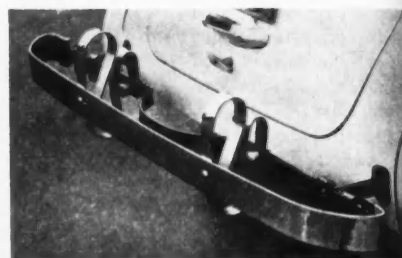
New Elsbert Devices

The Elsbert Mfg. Co., Inc., 353 W. Grand Ave., Chicago, has a new audible speed warning accessory known as the "Saf-a-Larm." The device is actuated by electrical impulses from the ignition coil and thus functions positively at any predetermined engine speed. Buzzer and adjustment knob are located in the cab.

The company has also announced a device known as the "Electric Supercharger" said to improve the ignition performance of all cars and trucks except Ford V-8 and Lincoln-Zephyr units.

Universal Safety Bumper

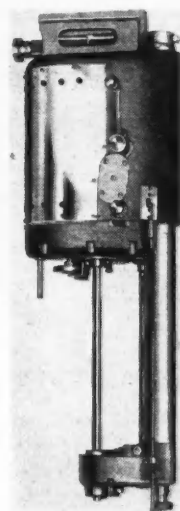
A patented safety bumper for passenger cars, taxicabs, and trucks has been placed on the market by the Universal Safety Bumper Co., 5669 25th Street, Detroit, Mich. The bumper is said to be a substantial unit made from high grade spring steel,



and so designed that shocks are dissipated and absorbed by the free ends of the horizontal bars as well as the triple coil rebound springs. When installed at the front, the vertical "S"-form rebound springs also serve as radiator grille guards.

Storm Boring Bar

The Storm Mfg. Co., Inc., Minneapolis, Minn., has introduced a new series of boring bars known as the BC series. The model BC-G has a capacity of 2.6 in. to 4½ in. by 12 in. deep. The larger BCT capacity is 2.6 in. to 5½ in. and 15 in.



deep. The operating weight of the smaller bar is 140 lb. and the larger 150 lb. Both bars have a free floating screw feed and both are of industrial type construction for longer life.

IS
THERE A TRUCK
IN YOUR FLEET
THAT'S **HARD**
TO STOP?



AFTER the crash ... after the lawsuits are settled and the bills are paid ... it's too late to think about brakes!

If there's a single truck in your fleet that's hard to stop, do something about it *now*! Put your

problem up to Johns-Manville Engineers. Let them tell you, through J-M's free Brake Advisory Service, the correct brake lining to use on those tough, hard-to-stop jobs. This service is not a general recommendation for just any fleet, but a carefully worked out Brake-Lining Specification for *your fleet* ... tailor-made for *your own* individual conditions of operation.

When so much depends on brakes that are safe, why not be sure? Mail the coupon today to Johns-Manville, 22 E. 40th St., N. Y. C.

JOHNS-MANVILLE
THE OLDEST
NAME IN
BRAKE LINING

JOHNS-MANVILLE, 22 East 40th St., New York City
Send me complete details about the free J-M Brake Advisory Service.

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CCJ-9-38

SAVES HAULING COSTS ON 2,035 POUNDS

A conventional truck body of this type weighs 5,300 pounds. Built of DYN-EL, it weighs 3,265 pounds . . . A saving of 2,035 pounds . . . Yet the body of DYN-EL costs no more.



Truck body—225" long x 82" wide x 55" high. Built by Barry & Baily Co., Philadelphia, for John Hohenadel Brewery, Inc.

Dyn-el is 50% stronger than ordinary sheet steel . . . 60 to 150% more resistant to corrosion than copper-bearing steel (4 to 6 times ordinary steel). In the 48-page book, "A.W." Presents Dyn-el, you will find full details of savings in weight and cost possible with this new high-strength, flat-rolled steel . . . plus engineering and mechanical values. Diagrams, tables and charts cover a wide range of tests and properties. To executives, this book gives a quick picture of performance and costs. To engineers, it gives complete fabricating and design properties and table of sizes and weights. We will be pleased to send you a copy.



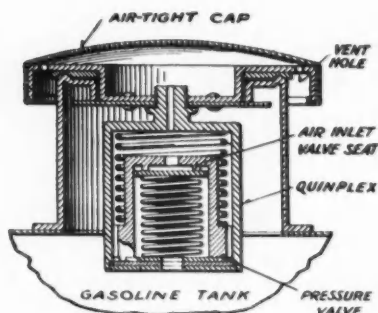
ALAN WOOD STEEL COMPANY

MAIN OFFICE AND MILLS, CONSHOHOCKEN, PENNSYLVANIA:: SINCE 1826:: DISTRICT OFFICES AND REPRESENTATIVES—Philadelphia, New York, Boston, Detroit, Los Angeles, Seattle, San Francisco, Houston, Buffalo, Pittsburgh, Cleveland, Chicago, Cincinnati, New Orleans, St. Paul, St. Louis, Montreal. PRODUCTS INCLUDE—"A.W." Rolled Steel Floor Plates:: "Swede" Iron:: Billets—Blooms and Slabs:: Sheared Steel Plates:: Hot Rolled and Hot Rolled Annealed Sheets and Strip:: Steel Products also furnished in Copper and Alloy analyses.

Gas Tank Seal

The Quinplex Corp., 1520 Law and Finance Bldg., Pittsburgh, Pa., has developed a new twin-valve gasoline tank cap which eliminates evaporation, leakage and deterioration of gasoline from automotive fuel tanks. It also prevents vapor lock in the line to the carburetor.

The device consists of a gasoline tank cap to which is fitted an automatic air inlet valve and a pressure blow off valve. If the pressure within the tank drops below atmospheric, the light spring air inlet valve admits air freely and permits gasoline to be withdrawn from the tank for engine operation and relieves any possible vacuum



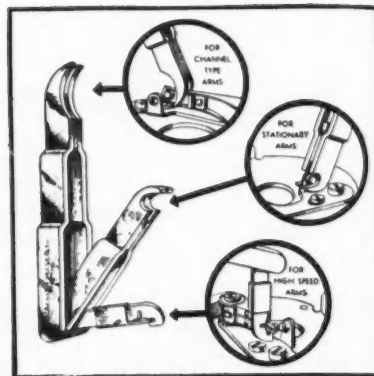
which might be created by condensation of fuel vapors within the tank. Quinplex prevents loss of fuel from the tank, by evapora-

tion up to the point of blow-off pressure, as well as loss by leakage at the filler opening.

Quinplex also provides sufficient vapor pressure in the fuel tank to force liquid fuel through the pump to carburetor under any operation or temperature conditions at which vapor lock in the fuel line can occur. This pressure valve is set at $2\frac{3}{4}$ to 3 lb. to avoid interference with carburetion in that the $\frac{1}{4}$ lb. possible increase over pump pressure.

3 in 1 Point Aligner

A new distributor point aligning tool, claimed to reduce point aligning to a matter of seconds, has been announced by the Guaranteed Parts Co., 250 W 54th St., New York. Three separate heads permit



the tool to be used on channel-type, stationary or high speed arms with equal ease. It will fit all points used in Delco Remy or Auto-Lite distributors.

Brush Electroplating Outfit

The Portable Plating & Equipment Co., 1000 So. Michigan Ave., Chicago, has announced a new portable brush electroplating outfit known as Super Plater, for electroplating small objects with either copper, nickel or silver. The small outfit is handy for replating headlight reflectors and for touching up the bright parts where the chrome plating has peeled off.

Application of the plating compound is made with a brush in which an anode is



located; one wire from the rectifier attaches to the brush and the other wire to the object being plated, thus completing the electrical circuit. Super Plater kit consists of a small transformer and rectifier unit which plugs in to the regular light socket, a brush, and a supply of cleaning and polishing compound as well as jars of copper, nickel and silver plating compounds. The complete outfit sells for \$12.95.

TO FLEET OPERATORS *who want to CUT* MAINTENANCE COSTS



Gatke Heavy-Duty Custom-Bilt Brake Blocks

**—and here is what it means
to countless fleet owners...**

- The years of engineering and research which has made Gatke Heavy Duty Industrial Brake Blocks famous are reflected in Gatke Genuine Moulded Brake Blocks for all cars, trucks, trailers, buses and tractors. In Gatke Heavy Duty Brake Liners the fleet operator has the correct friction value for every type of brake in service. Positive assurance of maximum braking with minimum effort; smooth action with no fading because of weather conditions; not affected by water, oil or grease; minimum adjustment and maximum mileage.

If your jobber cannot supply you with Gatke Heavy Duty Moulded Brake Blocks and Linings, write direct for Gatke material recommendations and complete information.

GATKE CORPORATION
228 N. La Salle Street Chicago, Illinois

WALKER

(CONTINUED FROM PAGE 34)

a fan on the engine flywheel. The coupling to the engine is a spring steel disk bolted to the flywheel. The direct current motor is mounted on ball bearings.

Service brakes are Bendix hydraulic, 14 in. by 2 in. front and rear. Parking is mechanical on the two rear wheels. Tires are 6.50/20 with other sizes available. The house-to-house delivery body has a loading space 59½ in. long 59½ in. wide and 59 in. high behind the cross aisle from door to door. There are no wheel housings.

The wheelbase is 87¼ in. and the turning radius is 17 ft. Front springs 37 in. by 2 in. and rear springs 48 in. by 2½ in. support a drop frame made up of alloy members 4 x 2 x 3/16 in. The steering gear is Ross and there is a throttle control on the steering column.

There is a directional switch on the front bulkhead which has three positions, forward, neutral and reverse. For ordinary forward driving the switch is left in the forward position. When the engine is idling no current is developed. The opening of the throttle operates a relay that connects the starting and lighting battery to the field circuit of the drive generator to excite the drive unit. When the drive generator has built up to a pre-determined voltage, the switch disconnects the battery as the generator is then self exciting.

The body has steel sides and floor and a wood top. The floor is 12-gage steel flanged and welded at the sides and rear to protect the chassis from payload drip and interior washing. Drain pipes are provided at each corner. Body frame is rectangular steel tubing welded to body floor flanges. The sides are 20-gage steel fastened to the frame with thread-cutting screws.

Ingersoll-Rand Compressor

Ingersoll-Rand Co. announces a new two-stage compressor in 1½ and 2 h.p. sizes. It is the latest edition to the I-R type 30 line and uses the V-shape design. It is supplied with either horizontal or verticle 65-gal. tank, or an 80-gal. (vertical only) tank.

COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938



PLAN NOW

FOR THIS!



GET LONG WEAR—SAVE DELAYS!

Yes sir, Mr. Fleet Owner! SUMMER is the time to pick out the make of Truck Chains that will give you the longest wear . . . save you the most delays during the bad weather, this fall and winter. (Talk to your McKay Jobber *now* about your expected requirements, so that he will be in position to give you prompt service when the need arises.)

Experience of the Big Fleets shows that you simply can't go wrong with McKays . . . the *quality* line, with these EXCLUSIVE features:

- (1) *Double-Bar-Reinforced* Truck Chains ("Multi-Grip")—for the lowest cost per mile.
- (2) "*Klip-Lock*" Fastener—easy, quick, positive.
- (3) *Quality* double-checked by a prominent, unbiased research organization.
- (4) "*Torture-Pit*" tested, for long wear.
- (5) "*Tops*," in fleet-owner road tests.



McKAYS

*are the choice,
by competitive
test, of many of
the largest fleets!*

THE McKAY COMPANY
McKay Building, Pittsburgh, Pa.

McKAY TRUCK CHAINS

Licensed to manufacture and sell Bar-Reinforced Tire Chains under United States and Canadian Letters Patent: The McKay Company; American Chain & Cable Co., Inc.; The Hodell Chain Co.; Pyrene Mfg. Co.; Dominion Chain Co., Ltd.; and Pyrene Mfg. Co. of Canada, Ltd.

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Save the equivalent of a complete motor overhaul for each truck you operate by using MAGNUSOL, the perfect COLD tank cleaning solvent. MAGNUSOL saves heating expense and time because it is used COLD—always ready for use. It takes the "cling" out of grease and oil. For quick, thorough cleaning of small parts, exterior surfaces, undergear, interiors, cement floors, etc., MAGNUSOL'S savings over ordinary cleaners will effect economies that will add \$100 or more to the operating profit of each truck you own.

FREE

48-page AUTOMOTIVE CLEANING HANDBOOK. Goes thoroughly into all cleaning problems connected with truck operation and maintenance. Send today on your business letterhead for your copy.

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Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants.

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Increase your Fleet's Efficiency Use the

Commercial Car Journal Standard Cost System. A simple, convenient and inexpensive method of keeping close tabs on trucks and drivers.

It costs only \$9.50 for 500 Driver's Cards, 60 Monthly Summary Sheets, 1 Complete Instruction Book, 1 Binder.



CHILTON COMPANY

Chestnut and 56th Streets
PHILADELPHIA, PA.

DRIVERS

(CONTINUED FROM PAGE 36)

among the drivers were 28 women. The age groups into which they fell were not given. Of the male truck drivers 58.2 were 30 years old or older.

Three truck drivers were reported as being 15 years old and 20 were reported as being 16 years old. At the other end of the life span was one driver 79 years old, one 76, one 74, five 72 and two 71. At 60 years of age there were 48 truck drivers.

The analysis showed that .6 per cent of the truck drivers had less than one year's experience driving a motor vehicle; 1.2 per cent had one year, and that 1.4 of them were at it for 2 years. In the 3 to 4-year group are 4.2 per cent of the drivers; 20.6 per cent fall into the 5 to 9-year experience group, and 28 per cent had 10 to 14 years' experience. Twenty-six per cent had 15 to 19 years' experience and 14.9 per cent had 20 to 24 years' experience. Then it tapered off to 2.7 per cent with 25 to 30 years' experience and .4 per cent who had driven 30 years and over.

Experience expressed in mileage was based largely on estimates. The estimates proved to be conservative, showing 18,200 annual average miles per driver. Experience on trucks of 1½ tons or less reported by 27,594 drivers was 95,803 miles, while on trucks over 1½ tons, 28,716 drivers reported 137,740 miles which closely paralleled the report of 19,317 drivers of 135,952 miles of trailer combination operation.

The analysis also showed that most interstate truck drivers were white. Ninety-seven and four tenths per cent of the drivers were of the Caucasian race and 2.55 per cent were Negroes. Two drivers were reported as Mongolian and 11 drivers were Indians.

Physical examinations for truck drivers in connection with their work seemed to be the exception rather than the rule. Seventy-three per cent of the truck drivers never had such examination in connection with their jobs. One tenth of one per cent had had a partial examination. The owner-drivers showed a more complete disregard for medical examinations. Eighty-five and seven-tenths per cent of the owner-drivers of

trucks reported that they had not undergone examination.

The average truck driver, according to these and other figures, is 5 ft. 8 2/10 in. tall, weighs 165.2 lb. and is 33 years old. He has had 13.6 years' experience as a truck driver and in terms of miles approximated 120,000 miles.

Method of Using Driver's Log

(See chart on page 36)

The driver in this instance reports for duty at Washington, D. C., at 6 a. m., waits 30 minutes for work, loads for 1 hour, then drives or operates 2 hours, reaching Baltimore, Md., at 9:30 a. m., where he stops 30 minutes for gas and coffee; then he drives 2 1/2 hours reaching Havre de Grace, Md., where he stops 30 minutes for lunch; from there he drives 3 hours, reaching Camden, N. J., at 4 p. m. After unloading for 1 1/2 hours, he goes off duty for the rest of the calendar day.

In section 9, crossings of State lines are indicated by checks and abbreviations of the names of the States at 7:45 a. m., 2:30 p. m. and about 3:15 p. m. Stops of 15 minutes, from 8:30 to 8:45 a. m., to deliver lading at Laurel, Md., and from 3 to 3:15 p. m., while crossing on a ferry, are not shown, but are included as driving or operating, as they are periods of not more than 20 minutes.

This day's log covers the first leg of a trip from Washington, D. C., to Boston, Mass.; the origin and final destination are shown at the bottom of the log because the trip will take more than 1 day to complete. The totals in the right-hand column show 12 1/2 hours off duty, 2 1/2 hours loading or unloading, 7 1/2 hours driving or



and PROFITS that "STICK" for SAFETY

NOBODY knows what trucking profits will be, if any, where potentially hazardous hauling equipment is employed.

A Truكتور Six Wheeler is the SAFEST hauling vehicle on the road because it cannot jackknife, being a steady, single unit vehicle, effectively braked in one operation, instead of two risky, separate operations required on a fifth-wheel trailer.

And you can haul a bigger net payload on a Truكتور Six-Wheeler than on a trailer of same capacity, because the fifth-wheel structure on the latter adds costly dead-weight ranging from 1/4 to 1 1/4 tons.

Get ALL the facts before investing YOUR Capital in rolling stock!

TRUكتور SIX-WHEEL TRUCK

THE TRUكتور CORPORATION • 156 WILSON AVE., NEWARK, N. J.

operating, 1 hour spent in meal or similar stops, and 30 minutes waiting for work. These amounts are gathered together in the lower right-hand corner to give 12 1/2 hours off duty, 7 1/2 hours driving or operating, and 4 hours other duty, a total of 24 hours.

Heil Enlarges Branch

The Heil Co., Milwaukee, Wis., has moved its Buffalo Branch to larger quarters at 2139 North Fillmore Ave. Karl Maas, formerly a member of the sales organization of the Heil New York branch office is in charge.

Gas Tax Net \$761,998,000 in 1937

Gasoline taxes, inspection fees and similar receipts—resulting from gasoline tax laws in the various states—yielded a net revenue of \$761,998,000 in 1937, according to reports of State authorities to the Bureau of Public Roads. Similar receipts in 1936 totaled \$691,420,000. Consumption of gasoline on highways amounted to over 19 billion gallons and increased 7.6 per cent over the preceding year. Increases are reported in every State except Nebraska and Tennessee.

Elements of Diesel Engineering

"Elements of Diesel Engineering," by Orville Adams, has recently been published by the Norman W. Henley Publishing Co. The 478 page book describes and illustrates all important diesel engine types. Price \$4.00.

T. A. Aspell Dies

Thomas A. Aspell, until recently general sales manager of The B. F. Goodrich Co. original equipment tire division, died at his home in Akron on Aug. 1, after more than a year's illness.

Did you say FREE NO-FILM for 12 Trucks?

YESSIR, you can have a free quart of No-Film for the asking. And that's enough to make as much as 10 gallons of quick-acting cleansing solution to whisk away dirt from a dozen of your trucks. Enough to make these trucks sparkle with cleanliness you've probably never seen before. Enough in fact, to make you specify No-Film always.

The secret of No-Film's dirt-destroying success? It's endowed with energetic chemical action; it never leaves paint-killing film! So send for your FREE quart of No-Film today (the offer is limited). Just tell us the number of trucks in your fleet, and we'll include our Technical Bulletin on Truck Maintenance. The Mapor Corp., 151 W. 46th St., New York, N. Y.

before you start—think of the finish NO-FILM

COMMERCIAL CAR JOURNAL
SEPTEMBER, 1938

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WASH CARS & TRUCKS FASTER, BETTER WITH S-P-E-E-D-W-A-S-H-I-N-G

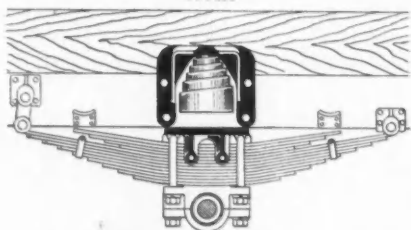
Pace-setting in time-saving, labor-saving, and money-saving washing results! Increases profits for wash rack operators! Radically cuts cleaning costs for fleet owners! Let it modernize your washing as it's doing for so many others.



Write at once for our Folder

THE ROTAWASHER CORP.
122 E. St. Clair Ave., Cleveland, Ohio

Ease the Load On Your Main Springs with



BORDIK Shock Absorbing Auxiliary SPRINGS

- 1 Bordik Auxiliary Springs make the ride level and shock-proof for heavy and uneven payloads.
- 2 Control road bounce, side-sway and heavy listing.
- 3 Hold the body up from striking the tires.
- 4 Easily installed without disturbing your present spring set-up.
- 5 Available for all trucks, buses, trailers, pick-ups and passenger cars.
- 6 Individual springs available in capacities from 1,000 to 14,000 pounds.
- 7 Cost no more than ordinary helper springs.

Agents in All Principal Cities. In ordering, specify make, model and year of vehicle.

Write at once for information.
ZINK-BORDIK PRODUCTS, INC.
421 East Adams St. DETROIT, MICHIGAN
Pioneer Designers of this type of Helper Spring Assembly.

FRANK SNO-BLOWS

Both "V" TYPE and
ONE WAY BLADE TYPE
hand or power hydraulic control
FOR ALL MOTOR TRUCKS
FROM 1½ to 10 TONS

Write for catalog 38AC and 38BC
with discount to truck dealers.

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ISLANDS



17,000 to 40,000 LBS. GROSS CAPACITY.
TRUXMORE 3rd Axle is engineered and built to produce the lowest hauling costs per ton mile with greatest safety. Made in 5 sizes to fit any make or type truck you choose.

Write to Truck Equipment Co., Inc.,
1791 Fillmore Ave., Buffalo, N. Y.
Branches and Dealers in Principal Cities.

TRUXMORE
WORLD'S BEST 3RD AXLE

NEW PRODUCTS

(CONTINUED FROM PAGE 78)

New Red Head Heaters

Associated Parts Mfg. Corp., Brooklyn, N. Y. has announced a new line of Red Head Heaters. The attractiveness of these current models is one of their outstanding features. A new development is the con-



venient shut-off valve located right on the heater. Thus, the driver can change instantly from heater to air circulator. The other handle directs the stream of air to any part of the car including foot pedal area.

L-P Junior Analyzer

The Lantz-Phelps Corp., 420 Linden Ave., Dayton, Ohio, announces a new junior model exhaust gas analyzer available at an extremely low price. This addition to



the LP Line follows many years of experience in the design and manufacture of exhaust gas analyzing equipment. Complete details and price from the manufacturer.

U. S. Lacquer Hose

The United States Rubber Products, Inc., has announced its new U. S. Peerless Lacquer Spray and Solvent Hose. Lacquer and synthetic enamel sprays usually contain butyl acetate and other solvents whose action is destructive to rubber, but this new hose lined with synthetic rubber has proven itself for this purpose.

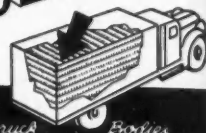
U. S. Peerless Synthetic Lined Lacquer Spray and Solvent Hose is also well adapted for use as a solvent hose, particularly in conditions where temperatures up to 150 deg. play a part. Because the tube is of synthetic stock practically no swelling develops when it is used as a solvent hose. In the smaller sizes this feature is of great value as constriction of flow due to swelling is reduced to a minimum. Available in sizes ¼" to ¾"—1 and 2 braid.

ADVANCED TRANSPORTATION
Write for Full Information
on 3 New Standardized
Line Production Trailers —
The Freightmaster
The Thriftmaster
The Roadmaster
Highway TRAILER
COMPANY

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**DRY-ZERO
INSULATION**



The Most Efficient
Insulation for Truck Bodies

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MERCHANDISE MART • CHICAGO

Be Sure to Specify
MIDLAND
(Christensen)
**POWER BRAKE
EQUIPMENT**

See your Midland Distributor or
write for new 12 page booklet.

THE MIDLAND STEEL PRODUCTS CO.
10605 Madison Ave. • Cleveland, Ohio

Be Sure to Specify



AMERICAN-BOSCH
Fuel Injection Equipment

For Diesel Engines

UNITED AMERICAN BOSCH CORP.
Springfield, Mass. New York, Chicago, Detroit

1½- to 3-TON
CHASSIS



Will Handle 13 to 15 Tons! — Thornton
Four-Rear-Wheel Drive, engineered into standard
1½- to 3-ton chassis—extra capacity, greater
traction, double pulling power! Does work of trucks
twice as large at almost half cost. Write today.
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THORNTON-eered
for TRACTION

**HOISTS
BODIES
TANKS**



**SNOW
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Spray-Painting Equipment—Spray Booths—Canopy Exhaust Systems—Exhaust Fans—Air Compressors—Hose and Hose Connections—Oil Guns.

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**THE DE VILBISS COMPANY
TOLEDO, OHIO**

Distributors or direct sales and service representatives available everywhere.

IT PAYS TO BUY


EDWARDS

QUALITY

SEMI-TRAILERS

EDWARDS IRON WORKS, INC.

SOUTH BEND, INDIANA



THUMB SCREW ADJUSTMENT
BALANCED (S-SIDE) PULL
OVER LAPPING SEAL
ONE SIZE FOR MANY

TRADE MARK

NOC-OUT

HOSE CLAMPS

THE HOSE CLAMP WITH THE THUMB SCREW

Standard equipment of the automotive industry. Adjustable—one size equals many. Quick tightening, perfect seal. At all Jobbers. Pat. No. 1,382,813.

WITTEK MFG. CO.
4305 W. 24th Pl., Chicago, U. S. A.


Speedway "Tiny" Tools

Recently the Speedway Mfg. Co., 1834 S. 52nd Ave., Chicago, announced a new Speedway No. 250 Home Drill and Grinder Kit. These light weight, inexpensive tools, though originally designed strictly for handyman and homecraftsman use have made inroads in the mechanic field where light-duty, intermittent service is the rule. The 1/4-in. drill operates at 1000 r.p.m., the grinder at 20,000.

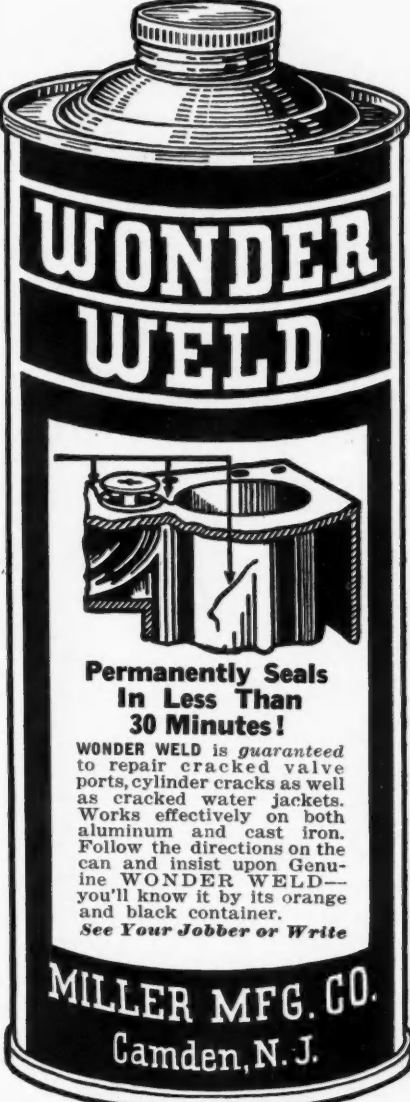


"Fire-Devil" Screwdrivers

"Fire-Devil" is the name given a line of screwdrivers with neon test lamps in the handle made by the Sundt Engineering Co. The neon tubes are unusually sensitive to high voltages and low currents. The screw-



drivers are used for testing spark plugs, ignition cables, high voltage lines, neon signs, radio frequency, etc. The handles are amber pyroxilin, guaranteed unbreakable, and the blades of selected tool steel. Three sizes are offered.



WONDER WELD

Permanently Seals
In Less Than
30 Minutes!

WONDER WELD is guaranteed to repair cracked valve ports, cylinder cracks as well as cracked water jackets. Works effectively on both aluminum and cast iron. Follow the directions on the can and insist upon Genuine WONDER WELD—you'll know it by its orange and black container. See Your Jobber or Write

MILLER MFG. CO.
Camden, N. J.

Available Trucks

Builders of fine Motor Trucks, Tractors, Trailers and Buses since 1910. Capacities from 1 1/2 to 10 tons.

Write for bulletin

AVAILABLE TRUCK COMPANY
2501 Elston Ave. Chicago, Illinois



FINGER-FLIP SWITCH

TELEOPTIC TURN SIGNALS

with "Finger Flip" switch in the gear shift ball is the easiest to operate of all directional signals. 100% visibility at 125 feet day or night without visors. Exclusive angular construction makes Teleoptic signals visible over a larger area. Fully guaranteed for one year. When ordering new trucks specify Teleoptic.

THE TELEOPTIC CO., RACINE, WIS.



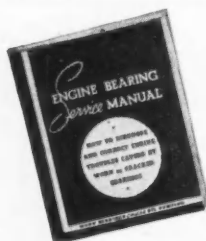
FRONT LITE
(Side View)
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Guess THE NUMBER
OF BEANS IN THE JAR
WIN \$500 IN CASH



DON'T GUESS!

WORN BEARINGS
Cause
OIL PUMPING



FREE MANUAL..

Here is the only complete Engine Bearing Service Manual ever produced. Written by a practical authority. One copy FREE to each service man requesting it. Write while still available.

AT THE CAUSE OF OIL PUMPING

Check every point!

How many beans in the jar? You can tell accurately only by counting them. What causes oil pumping? You can tell only by checking the engine! Guesswork is out and scientific oil control service has taken its place in good service shops.

And when you find the cause of oil pumping is worn bearings, you know that the cure is to replace the bearings. Always use Federal-Mogul replacement bearings. You can depend on their quality and accuracy!

The Federal-Mogul Bearing Oil Leak Detector saves time and money in finding out the condition of all bearings and oil lines on full-pressure lubricating systems. Any mechanic can use it with scientific accuracy.

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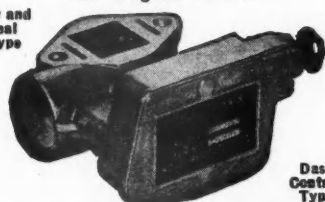
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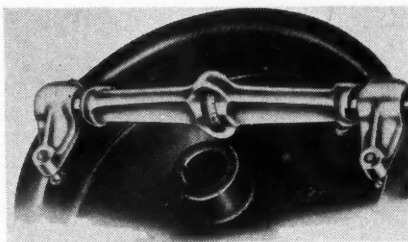


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TRUCK TRANSMISSIONS
For easy shifting, quiet operation, hauling power and dependability, be sure to choose trucks equipped with FULLER'S.

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KALAMAZOO, MICH.

Thomason Drum Micrometer

The Shepard-Thomason Co. announce a new precision tool for measuring brake drums at a moderate cost. The instrument is designated as the No. 5 Drum Micrometer. It greatly facilitates determining the exact "over-size" lining to use on brake

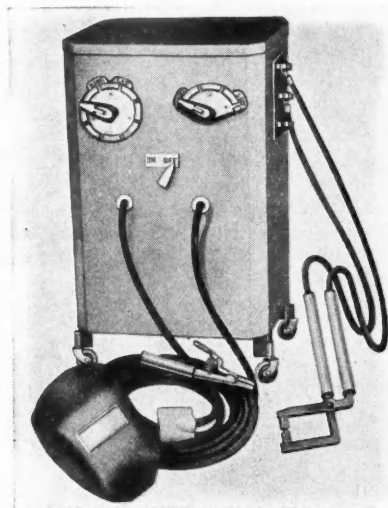


shoes when the drums have been turned, and also when shoes are picked up for re-lining.

The capacity of this device, without extensions, is from 9 in. to 16½ in. An extension can be obtained that will increase capacity to 22½ in.

Miller Arc & Spot Welder

A combination arc and spot welder is announced by Miller Electric Mfg. Co., Appleton, Wis. The spot welder is built into the company's regular No. 2, and No. 3 welders, with capacities of 165 amp. and 220 amp. The units are designed to pro-

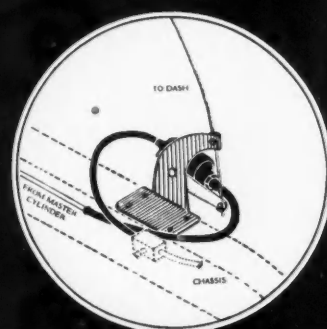


vide arc welders of ample capacity to handle electrodes from 1/16 in. to ¼ in., and have 32 heat controls. The addition of the spot welder enables them to handle all sheet metal work. Special spot welding tongs are furnished in different styles to handle individual applications. Patented in the U. S. A.

Bonney Improves Wrench

Bonney Forge & Tool Works, Allentown, Pa. has announced improvements in its No. 66 torque indicating wrench. Length has been increased from 14 in. to 17 in. A new thumb screw simplifies the "click-off" setting and the range has been increased to cover all tensions between 25 and 125 lb. ft.

Reduce JACKKNIFING on ICY PAVEMENTS with BRAKE CHECK



PATENT

PENDING

Each winter brings back that old dangerous bugaboo—jackknifing. It's inevitable when front brakes are applied on icy pavements.

This winter eliminate the jackknifing bugaboo with BRAKE CHECK, the front wheel control which allows the driver to cut off the front wheel brakes and throw the braking responsibility to the rear wheels which carry the weight and hold the road.

Fleet operators everywhere are equipping their trucks with BRAKE CHECK because they know they can reduce winter accidents and maintain operating schedules the year round.

How It Operates

A simple ball valve is attached to the frame. Flexible tubing is cut into the T or cross fitting so that the brake fluid may be directed through the valve and back into the line. A control wire to the dash tips the valve dropping the ball into the seat to cut the pressure to the front brakes. The wire regulates the valve to return the front brakes to operation. Cannot leak. BRAKE CHECK is easily installed—complete instructions come with every unit.

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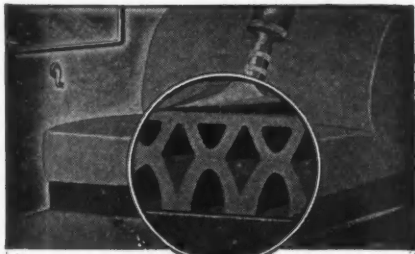
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Increase the life of your truck cushion—decrease their upkeep expense by equipping with Black Diamond all-rubber seat cushions and back rests. They wear fore and never let you down. Savings begin with their low first cost. Then you save by eliminating month-after-month upkeep costs. With the exclusive diamond grid construction, these cushions lead in comfort—in economy and durability. But first, get the facts that will convince you that, regardless of the job to be done, you should always install Black Diamonds. Made in every size to meet any requirement.

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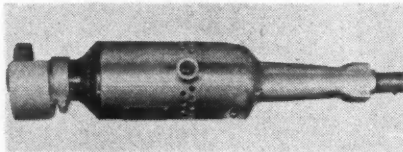
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for Public Utilities*

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YORK-HOOVER BODY CORP.
YORK, PENNA.

B & D Portable Grinders

The Black & Decker Mfg. Co., Towson, Md. announces two new high speed portable grinders with wheel size capacities of 2 inches and 2½ inches. These are precision tools, having a no-load speed of



19,000 r.p.m.; an overall length of 13½" and the very light weight of 3½ lbs. and 4½ lbs., respectively.

Bordik Helper Springs

The Bordik line of shock absorbing auxiliary springs, a flat, helical coil-type helper spring, has been placed on the market by Zink-Bordik Products, Inc. Detroit. These helper springs designed to carry heavy or uneven loads without resorting to extra spring leaves or auxiliary leaf springs, are said to serve as shock absorbers as well. They may be used in conjunction with ordinary helper springs if desired.

It is claimed that they control side sway, road bounce, and excessive listing due to uneven loading. Springs and special mountings are available for all popular makes of trucks, commercial vehicles, trailers, buses, passenger cars and pick-up units.

Gasoline Hose

The DeVilbiss Co., Toledo, Ohio, has announced a new synthetic rubber gasoline pump hose which features high resistance to gasoline and oil, positive seepage protection, controlled hose expansion and



minimum flow resistance. Full protection against fire hazards without loss of flexibility is provided by an improved design of woven wire static eliminator.



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DUAL-AXLE-DRIVE
TRUCKS

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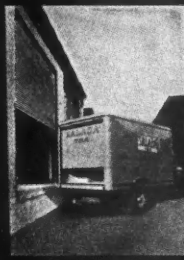
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 . . . Coils like a
 window-shade, out
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CONVENIENT
BURGLAR PROOF
FIRE PROOF
MORE DURABLE
 Write for Details
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For running-in new and rebuilt
 engines use auxiliary lubricants
 containing "dag"* Brand
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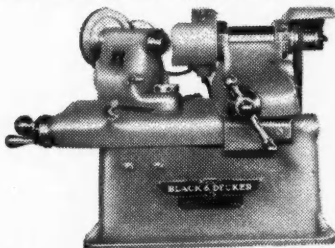
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A proven product. 1½ to 10
 ton capacity. Write for com-
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B & D Wet Valve Refacer

A new wet grinding valve refacer has
 been announced by the Black & Decker
 Mfg. Co. The wet grinding feature, which
 permits faster grinding, consists of a com-



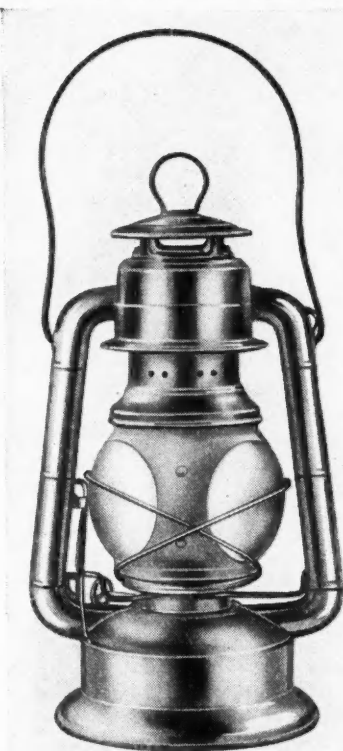
bination supply and filtering tank from
 which a pump forces the solution to the
 grinding wheel.

Loclink Tailboard Adjuster

The W. H. Lewis Mfg. Co., P. O. Box
 624, Newburgh, N. Y., has announced the
 "Loclink," a specially designed tail gate
 hook that grips the chain firmly at any de-
 sired link. "Loclink" permits an instanta-
 neous adjustment of the tailgate position by
 merely slipping the chain over the hook at
 the desired point.

New Type Lantern Globe

A new type of lantern globe, called the
 "Lite-card," has recently been placed on
 the market by Detroit Metal Products, Inc.,



Detroit. It differs from earlier styles of
 lantern globes in that, instead of being
 made entirely of glass, it consists of a steel
 housing with three glass bulls-eyes equally
 spaced around its circumference, so as to
 give perfect visibility in all directions, re-
 gardless of the position of the lantern. The
 combination of steel housing with specially
 designed bulls-eye lenses makes it practi-
 cally indestructible as compared with the
 all-glass type.

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